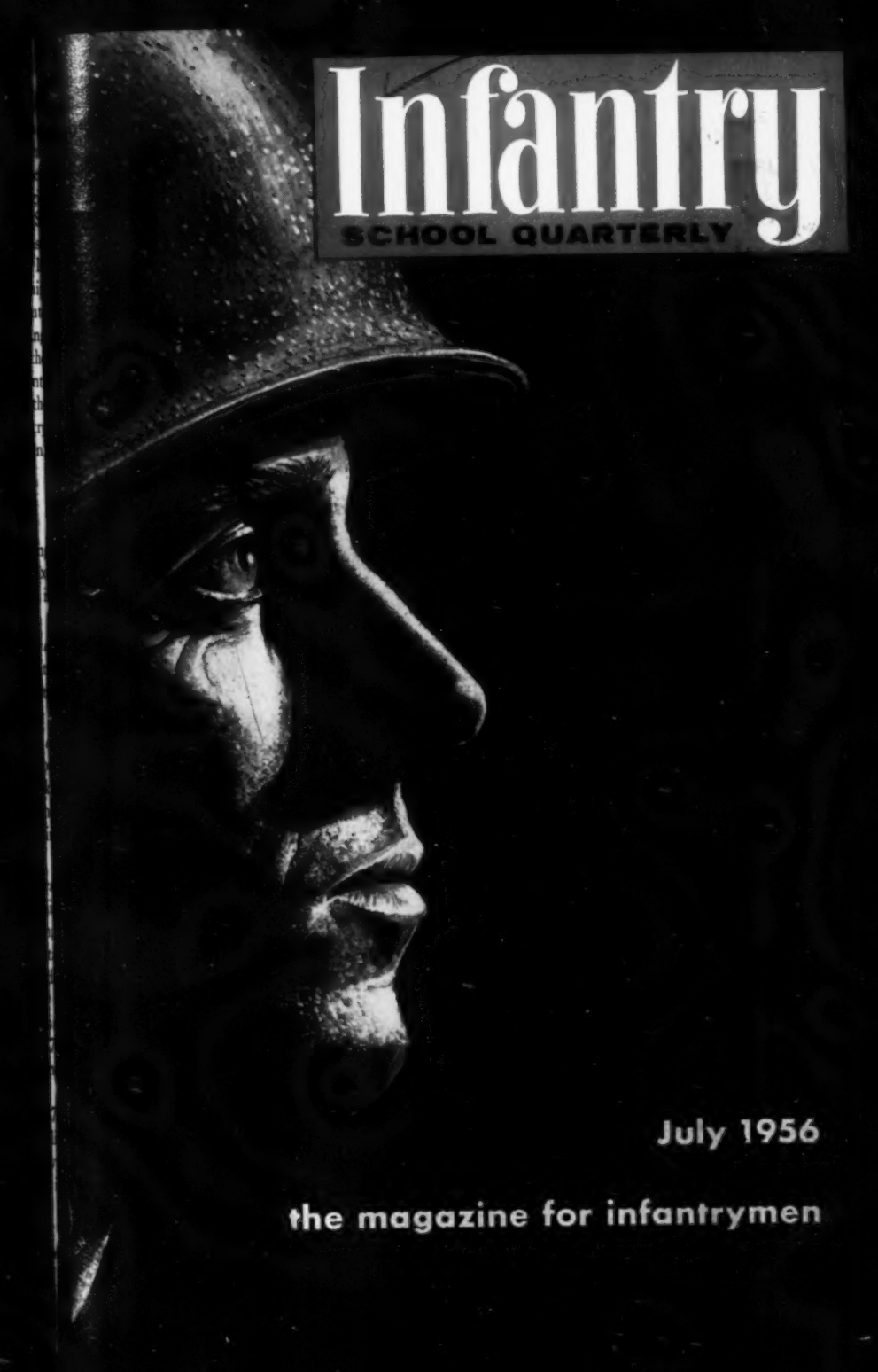
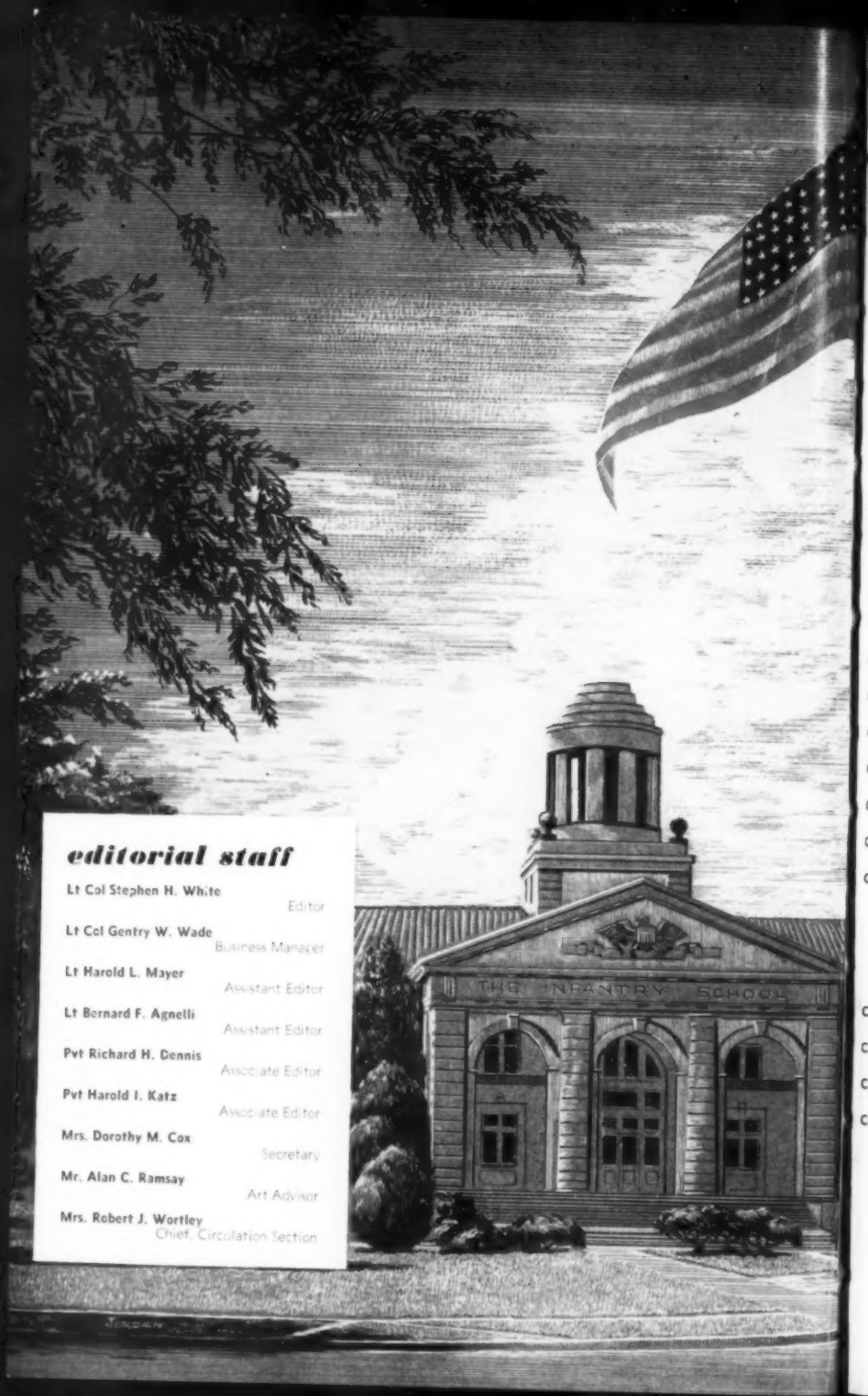
Infantry

SCHOOL QUARTERLY



July 1956

the magazine for infantrymen



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Infantry

SCHOOL QUARTERLY

volume 46 number 3 — july 1956

the infantry school

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LETTERS TO THE EDITOR

Quarterly at USMA

Sir:

Although my subscription ended with the issue of April 1955, I would like to take the opportunity to renew my subscription, if possible. I would like to renew it from that time so that I have the benefit of the back issues which I missed. They are hard to borrow here and the owners are rather chary about lending them. Besides, they have made excellent references and have provided a fine basis for classroom discussion.

Jesse E. Blackwell
United States Military Academy
West Point, New York

We are pleased to have among our subscribers students and members of the staff and faculty of the United States Military Academy. We are equally pleased that the Quarterly *is used as a reference both inside and outside of the classroom at West Point. Many of our subscribers have written us that they find the* Quarterly *an excellent reference in preparing instruction and training problems. We suggest that our readers file back issues for that purpose.—Editor.*

History Lesson

Sir:

As a history teacher, I am very much interested in the article, "Was It an Ambush?" by Capt Sheffield in the October 1955 issue of the *Quarterly*. Although I have studied history in college and taught U.S. history for several years, this is the first reasonable and logical explanation of Braddock's defeat at Duquesne I have ever heard. I've often wondered why Braddock was expected to cept advice from a young, inferior an relatively inexperienced officer as Washington must have seemed to the general.

Educators tell us that we should deemphasize wars, battles and militar tactics in teaching history. Many of the elementary textbooks omit Braddock's defeat entirely or merely mention it as a battle of the French and Indian Wars. I think they are wrong. Braddock's defeat made no difference in the outcome of the wars but, as Capt Sheffield stated, it certainly marked a change in method and means of fighting.

I'm hoping that someday, someon with military experience writes a histor book from a military viewpoint. It shoul be interesting.

I enjoy reading the *Quarterly* and i you're wondering how I get it, I have a son in the Infantry, now stationed at Fort Riley.

Mrs. M. Hall
Muskegan, Mich.

Mrs. Hall's letter is one of the few we have received from a feminine reader. Her comments as a historian are indeed enlightening. As military men, we feel that a great deal can be learned from historical examples.—Editor.

Proud Reader

Sir:

Enclosed you will find a money order renewing my subscription to *The Infantry School Quarterly*.

I have enjoyed the magazine immense- and have passed it on to my buddies. . have nothing to add since everything n the *Quarterly* has been very informa-ive and useful and probably most of my questions have been answered in past issues. I'm proud to be a subscriber to the *Quarterly*.

Rodalfo G. Salinas, SFC, Inf
Co I, 34th Infantry Regiment

Many thanks to SFC Salinas for his letter. We are glad that the Quarterly *meets his needs and that he passes it on to others. Many of our readers have received or will soon receive in the mail a renewal blank. We hope that, like SFC Salinas, you will take time to fill it out so you may continue to receive* The Infantry School Quarterly.—*Editor.*

Quite a Statement!

Sir:

I'd like to take this opportunity to tell you how much I've enjoyed reading the few copies of the *Quarterly* that I've been able to borrow from somebody else. To me it seems to be the best military magazine I've ever read. That's quite a statement, coming from a Marine! The up-to-date knowledge it contains is superb. I am inclosing my subscription.

C. A. Johnson, T/Sgt, USMC
3d Marine Division
FPO San Francisco, Calif.

We appreciate Sgt Johnson's pat on the back and want him to know that we value a compliment from a Marine very highly. Almost 500 Marine Corps units and individuals are subscribers to the Quarterly. *It is always interesting to learn what members of other branches and services think about* The Infantry School Quarterly. *Opinions and criticism help us to achieve our goal — to publish a worthwhile military magazine —one which will be helpful to Infantrymen and others.—Editor.*

Too Slow

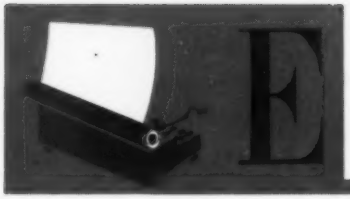
Sir:

. . . While I was an instructor at Fort Benning, I was continually amazed at the "ignorance" of officer classes concerning the latest in tactics, organization and weapons. Being again in the field, the answer is simple—official publications such as manuals and the changes thereto actually take years to reach the field. Arriving in Alaska in late 1954, I found my heavy weapons company still using 1949 manuals for recoilless weapons although the new manuals were printed in 1952. Only recently have we received changes to manuals printed in 1953. Going back still further, I recall that the new marksmanship courses were first published in the *Quarterly* in 1949 and early 1950. In 1952, on Okinawa, our units still did not have the official data.

Please — let's get more timely articles on new items. Of course, it will be said that we haven't requisitioned it — but we have. The system should get it here in good time but it doesn't.

William C. Scholly, Capt, Inf
53d Infantry
APO 949, Seattle, Wash.

Considerable time is required to compile, write, edit and obtain approval for changes to field manuals and to publish new ones. It also takes time to distribute manuals and other literature to all units in the field. That is why The Infantry School Quarterly *is important. We are able to furnish new information quickly because we are located at The Infantry School where new doctrine, techniques and organization for the Infantry are formulated. Since the* Quarterly *is published frequently and mailed quickly, units in the field obtain much new information faster than by any other means. We try to cover everything new but if you're in the dark—don't hesitate to let us know. We'll try to include the material you lack in a future issue.—Editor.*



EDITOR'S PAGE

Dear Reader:

Secretary of the Army Wilber M. Brucker and Army Chief of Staff General Maxwell D. Taylor have been pointing out, on every possible occasion, areas of major interest to the Army. We have a responsibility to make these interests known, not only to our own personnel, but to the other services and to the American public.

We of the Infantry are particularly interested in the ground and air mobility needed to fight successfully against any aggressor anywhere in the world on short notice—on an atomic or conventional battlefield. We want to achieve and maintain combat readiness and the highest standards in our units. It is important that we attract and hold the best possible men, that we give these men effective instruction and that we adequately prepare our officers to command. We must keep both our officers and our enlisted men physically fit and we must develop esprit de corps and pride in service.

In this issue of the Quarterly you will find one or more articles that discuss aspects of every one of these and other areas of interest. Don't keep this information to yourself. Help the Army and the Infantry by letting others know about our interests and our needs.

THE EDITOR

Believing that the atomic age has yet to find a substitute for the man who seizes and holds ground, the Army continues to develop rugged Infantrymen. Here two Ranger students advance toward an aggressor position.

Commandant
The Infantry School
Fort Benning, Georgia

Dear Sir:

I have just returned from summer camp with my ROTC unit, where I had my first real taste of the Army and of life on a military post. Prior to this duty I knew very little about military service except what I had learned from my reserve officer training, from my PMS&T and from a certain amount of "scuttlebutt."

Although I found summer camp pretty rugged, it gave me an opportunity to see for myself what duty as an Infantry officer might be like. I must confess, I was impressed.

Since returning to my home I have done a lot of thinking. I have been designated a distinguished military student. When I graduate from college next year I will have an opportunity to apply for a regular army commission as a second lieutenant in the Infantry.

I had planned to go on to law school after graduation but this opportunity for a regular commission which few men are offered, plus the fact that my entrance into law school will be delayed by a period of active duty, causes me to consider making the Army a career.

Before making such a decision, however, I would like to know more about the Army as a profession and what I might expect if I should become a career Infantry officer.

Any information you can give which will help me to decide what is best in my particular case, will be deeply appreciated.

Sincerely yours,

Thomas J. Andrews

Dear Sir!

BRIG GEN ROBERT L. COOK

Dear Cadet Andrews:

In the absence of our Commandant I shall reply to your recent letter. It is a pleasure for me to answer your request for information on the Infantry as a career. I am taking the liberty of having your letter and my reply printed in The Infantry School Quarterly because I feel that some of this information may be helpful to other young men who face a similar decision.

Today, you stand at a crossroads. The decision you are about to make will determine, to a great degree, the pattern of your future. The next 20 to 30 years will probably be the most productive ones of your life—the years when you will either accomplish or fail to accomplish most of the things you hope to achieve. You will want to make the most of them. If it were possible for you to have a divine or supernatural insight into the future so that you could see yourself 30 years from now, your decision might be less difficult.

It is hard for you at this time to consider or even conceive the things that will be most important to you 10, 20 or 30 years from now. You undoubtedly have a bright, but perhaps vague, mental picture of your future. You are sure that ahead of you lie wealth, fame, power and position. Your plans probably include a family and a home, success in your work, time for leisure and the ability to retire with security. You visualize a combination and proper balance of all good things

An ROTC cadet asks what the Infantry offers as a career. The Assistant Commandant of The Infantry School replies.

which will add up to a worthwhile and happy life. You are not sure how you will achieve these things, but you are confident that you will.

You have the optimism, enthusiasm and confidence of youth. That is as it should be because there is room at the top in any profession you might choose. On the other hand, you know quite well that many young men who start out determined to reach the top never get there. In your own college class there are some who will obtain wealth, fame and position. They will achieve them in a variety of professions. But there are others who will be faced with disappointment. Many may never reach the goals that they set for themselves. In most professions there is an element of a gamble.

As I grow older, I find that certain values (values that should be a part of every man's design for living) take on an ever-increasing importance. One of these is a feeling of *accomplishment*—a satisfying feeling that you are doing what you set out to do and that it is contributing to the development of others as well as yourself. *Respect* is also an important value — self-respect and the respect of family, friends and community. Another is *financial security*—a heavily weighted value. As the years pass and a man acquires increasing responsibilities, it is important for him to know that he can provide adequately for the welfare of his family, including the education of his children, and for his own independence in old age. Finally, I find good physical and mental health very important. I am sure you will find all of these things important to you also.

You are faced, then, with the problem of choosing a profession in which you can best foresee the accomplishment of your particular aims in life. I sincerely believe that you can achieve these aims as an Infantry officer. If you choose a career in the Infantry you can foresee, possibly more clearly than in many other professions, what your future will hold. As an Infantry officer you can look ahead 20 or 30 years and predict with considerable accuracy what your life will be like and what you will have accomplished by the time you reach retirement age.

An unmarried second lieutenant starts off with a monthly salary and allowances of $338.58. This is not a particularly large income. It may not match the starting pay available in a few civilian positions today, but it is higher than most. In periods of economic recession when other salaries are usually low, a lieutenant's starting pay will be relatively high. When other considerations such as medical care, post-exchange and commissary privileges and social and recreational facilities are added, it looks even better. The young officer can live comfortably and with dignity on his pay. He can get married and start a family. He knows that there will be a check in the mail every month *for the rest of his life* and that the check will grow as the years pass. He will have job security. As a career officer he need have little fear of being "laid off" or out of a job.

The average career officer who con-

istently and conscientiously gives his best will retire, after 20 or 30 years of service, with at least the rank of major or lieutenant colonel. Actually most officers with 30 or more years of service retire as colonels. If he has exceptional ability and "drive" he will go higher—a great many do. He will be able to retire at an early age—in his forties or fifties with a substantial monthly retirement income. At present pay scales a lieutenant colonel with 30 years of service will receive more than $503 a month upon retirement, a colonel more than $608 a month.

To match the income of a lieutenant colonel would require savings of $150,000 invested at 4% interest or an annuity into which $185 would have to be paid every month for 30 years. To provide a colonel's retirement pay would require $180,000 at 4% or an annuity costing $220 a month for 30 years.

With economic security assured for the rest of his life, the retired officer can devote his time to golfing, fishing or other sports and hobbies. Or, since he will still be in the prime of life, he can create for himself an active and profitable place in civilian life as so many retired army officers do. The leadership experience, management ability and broad knowledge that he has acquired in the service will qualify him for many worthwhile positions. General Mark Clark is now the president of The Citadel, General Lucius Clay is chairman of the board of the Continental Can Company, General Dwight D. Eisenhower is the President of the United States. But such accomplishments are not limited to general officers. The list of Infantry officers who have gone on to varying degrees of high position and fortune after retirement is endless. An article, entitled "Now It's Gruenther . . . Business Taps Generals and Admirals for Top Jobs" which appeared in the 27 April 1956 issue of *U. S. News & World Report*, covers this subject in considerable detail. It discusses reasons why American business and industry seek out and offer top jobs to retiring military men and lists a large number of retired officers who are now holding important and high-salaried civilian positions.

During his service, the Infantry officer continues to grow mentally. His education is extended through travel, experience and frequent schooling. The Army has a positive and continuous program of education in military and civilian schools

to develop the mental capacity of its officers. Many officers obtain their master's and doctor's degrees while in the service —some in leading foreign universities and frequently at no expense to themselves.

The Infantry officer travels—at home and abroad. During his career he sees a large part of this country and many of the other countries of the world. The cultural advantages he acquires through this travel are unlimited. They contribute to the pleasure of daily living and add meaning to his entire life. He makes friends and acquaintances around the globe. Living among and working with peoples of other lands he learns more about their customs, their way of life and their country than the tourist. He develops an understanding of humanity and global affairs that few people have the opportunity to obtain.

The Infantry officer has social and recreational advantages that are hard to equal in the average civilian community. Every post has its officer clubs which are comparable to fine country clubs. The provide facilities for every imaginable type of social and sports activity for the officer, his family and his guests and at a fraction of the cost for similar advantages elsewhere. The officer acquires social graces that permit him to move in any strata of society. He is equally at ease in dress blues, white tie or hunting jacket—he feels at home in a gathering of military, civilian or foreign dignitaries or a group of ten-year-olds at a Cub Scout den meeting.

The Infantry officer probably is in better health and physical condition than the average civilian of his age. He spends much of his time out-of-doors. Exercise and physical activity are a part of his daily life. He has annual physical check-ups and gets good medical care.

Other advantages become apparent when a career in the Infantry is looked at in retrospect. Let's imagine that you decided to stay in the service and that you have been an Infantry officer for almost 30 years. You will soon retire—at the age of 52—with 75% of your annual base pay for the rest of your life. With your children through school and on their own, you and your wife can live comfortably on that income, particularly since it can be augmented by additional income from modest but worthwhile investments you have made through the years. But you are not ready to stop work at this early age.

After a few months of travel to visit old friends and possibly some favorite spots in this country or abroad, you return to a new position in civilian life or to a business of your own. Most likely this position or business will be in the community you have picked out during your travels as the one spot in which you and your wife most want to live.

As you settle in your new life you look back over the career that made all of this possible. It hasn't all been easy. You have

had a normal share of problems and inconveniences. At times the going was a bit rough but, strangely, the more difficult periods are the ones which somehow seem to give you the fondest memories. It is doubtful if you would change them now even if you could. They have helped to make you what you are.

You are pleased that your children have been well educated. They have had opportunities of travel, experience and education abroad that few children get. Each speaks an additional language or two, much of which they picked up with relative ease as youngsters while living among the people where the languages were spoken. You are convinced that they have more poise, a greater ability to adjust to change and a better understanding of other peoples and the world in general than the average young people you know.

You look back over your service career with justifiable satisfaction. You take pride in the knowledge that you have served your country and your fellow man. Your life has been useful and the most productive years of your life well spent. You have that important commodity which I mentioned earlier — self-respect. And you notice that you have prestige and respect in your community. Your broad knowledge and experience, and your ability to organize, to lead and to work with others enable you to take an active part in your community.

In your home you have mementos and rare items that you have acquired in foreign lands—keepsakes that bring back pleasant memories of your travels and experiences in the Orient, in Europe and other parts of the world.

Perhaps you haven't made as much money as some of your classmates but you have lived as well as many of them—better than most. In a number of respects you have had a better and a fuller life than those with the highest incomes. You

may not have saved as much money as others in your class but you have financial security—and that security is relatively loss- and inflationproof.

If you check into the careers of your classmates you will find that you have done well by comparison. In fact, you will find few, if any, with whom you would be willing to swap places.

Yes, the Infantry offers an exceptionally fine and worthwhile career. I certainly would not change mine. And I have yet to encounter a retired Infantryman, officer or enlisted man, who would select any other profession if he could start over again. I am sure you will feel the same way at the end of your career.

I hope that you will find this information helpful in making your decision. If I can assist you in any other way please let me know.

Sincerely yours,

Brig Gen Robert L. Cook
Assistant Commandant
The Infantry School

By Col John J. Tolson

Army aviation will help to provide the speed,

mobility and flexibility needed by the Infantry.

WINGS FOR INFANTRY

The Army is getting an expanded aviation program. It is getting it because the Army, today, has an acknowledged requirement for more aircraft.

The first aviation organic to ground units was authorized by the War Department on 6 June 1942 for field-artillery observation. Prior to that time all aircraft had belonged to the Army Air Corps. During World War II light army aircraft were used for observation, reconnaissance and liaison. When the Air Force became a separate service, ground units retained light planes for these purposes.

In the Korean conflict, the Army found additional requirements for aircraft. It employed helicopters and light planes for air evacuation of the seriously wounded from forward positions, for emergency resupply of small isolated units and, on a few occasions, for small troop movements. Now, faced with the possibility of a future war in which great speed, mobility and flexibility will be decisive factors, the Army — especially the Infantry — is turning its eyes increasingly to the air.

Today, we have a global army with approximately 40% of our troops spread rather thinly in 73 countries. If aggression should occur in any one of the many "trouble spots" scattered around the world, we would have to move forces to meet that aggression — and we would have to do it quickly. Our international commitments, our limited military resources in being and the requirement for

speed demand that our army be capable of movement by air. Our top army command has recognized this need for some time. Steps are being taken that ultimately should give us this capability both strategically and within the combat zone.

One of General Matthew B. Ridgway's last official acts as Chief of Staff was the issuance of a directive in which he established policies for the emphasis of air transportability.[1] General Maxwell D. Taylor, our present Chief of Staff, has further emphasized the need for this ability. He has stated that all of our troops and their organic equipment, except the heavier tanks, must be capable of movement by air.[2]

But strategic movement and logistical support by air are not the only interests the Army has in aviation today. Wi the recent staggering increase in fir power, especially in the form of nucle weapons, our doctrine, tactics and tec niques are being studied and modifie Our current concepts visualize widel dispersed armies made up of self-co tained units that must be moved and *su plied* in *sustained combat operation* without land communications. The Arm has an urgent need for its own aviatio It needs transport aircraft for use i combat operations to transport units an provide logistical support for regiments battalions or companies. Some individ uals, with certain justification, even ad vocate that the Army have its own clos combat-support aircraft. However, i

[1]Letter, US Army Chief of Staff, dated 28 June 1955, subject: "Air Transportability."

[2]In an article, "Be Ready to Go by Air," which appears in this issue of the *Quarterly*, Capt Robert L. M Daniel indicates some of the practical, working-level thinking that is being given to this subject.

H-16

H-21

this article we are concerned only with army transport aviation.

Several developments during the past year have facilitated the expansion of the Army aviation program. A new Army Aviation Directorate has been created by Department of the Army in the Office of the Deputy Chief of Staff, Military Operations. Headed by Major General Hamilton H. Howze, this office in conjunction with the Chief of Research and Development and the Chief, Transportation Corps, is moving rapidly to provide the Army with much-needed transport aviation. Present plans call for the organization of 36 transport helicopter companies and a number of fixed-wing airplane companies. Rotary-wing aircraft will be organized into light, medium and, possibly, heavy companies. The light companies will be equipped with the H-21 and H-34 aircraft and medium companies with the H-37. Decisions have yet to be made on the heavies. However, a heavy helicopter, the H-16, has been developed and is being tested. Light companies are being formed as fast as equipment and trained personnel become available. We now have three companies equipped with the H-21: one at Fort Bragg, one at Fort Riley and one at Fort Belvoir. Seven light companies have been organized with the H-34: one at Fort Benning, five in training at Fort Sill and one in Europe. There are no medium companies as yet. Some of these companies ultimately will be organized into helicopter battalions. At this time, it has not been established whether there will be light, medium and heavy battalions or whether the battalions will be made up of companies of each type.

The U-1, Otter, is the plane that is being procured for the fixed-wing companies. This plane falls within the 5000-

Helicopterborne troops get into action fast.

pound weight limitation on fixed-wing aircraft for the Army which has been established by agreement between the Army and the Air Force. Approximately 90 of these planes, now being procured, will permit the forming of three companies. Two fixed-wing U-1 companies are now being organized at Fort Riley Kansas.

Paralleling the development and pro curement of aircraft is a training pro gram for pilots and other necessary per sonnel. A year and a half ago, Cam Rucker, Alabama, was made the home

The H-34 carries 12 to 15 fully equipped combat troops.

The Army Aviation School. Since that time it has become a permanent army post, Fort Rucker, and has been designated as The Army Aviation Center. Recently, the pilot-training program was expanded to include senior officers.[3] A recent senior-officer class included a number of colonels. During the next two years 106 junior-officer applications for pilot training will be processed every three weeks. Significant also is the awarding of warrants to selected enlisted personnel upon completion of helicopter-pilot training.

Continental Army Command has added further impetus to the Army aviation program by locating CONARC Board Number 6 at Fort Rucker, with responsibility for testing army aircraft and related aircraft equipment. Thus, one location has become the focal point for army aviation just as Fort Benning is the center for Infantry and its related activities.

[3]D/A Cir 621–14, dated 26 January 1956.

It is also significant that Fort Rucker and Fort Benning are conveniently situated near each other so that the two installations may work closely together in developing air mobility for our Infantry units.

Of particular interest to us in the Infantry is the part that The Infantry School is playing in the Army aviation program. A great percentage of the requirements for army aviation stems from the needs of the Infantry. The Infantry School has been given specific areas of responsibility for the development of doctrine, tactics and techniques for the use of aircraft to meet the Infantry's growing requirements for speed, mobility and flexibility. The Chief of Staff has said that the Department of the Army will look to The Infantry School for initiative and energetic prosecution of a training-and-development program to meet these requirements.

This mission required a major change at The Infantry School. The Airborne Department had to be reorganized to provide the staff needed for the study and development of doctrine, tactics and techniques for all aspects of air mobility. Consequently, the department was reorganized and redesignated the Airborne-Army Aviation Department (14 February 1955). The department now contains two major agencies—the Airborne Training Group which continues to operate the Infantry's world-famous parachute-training course and a new Air Mobility Group. (See Figure 1.)

We are concerned here with this latter group which is made up of experienced pilots and airborne officers. This is the group that is developing the fundamental concepts for the use of aviation—Air Force and Army—to increase the combat potential of the Infantry. The following specific missions have been assigned to the Air Mobility Group:

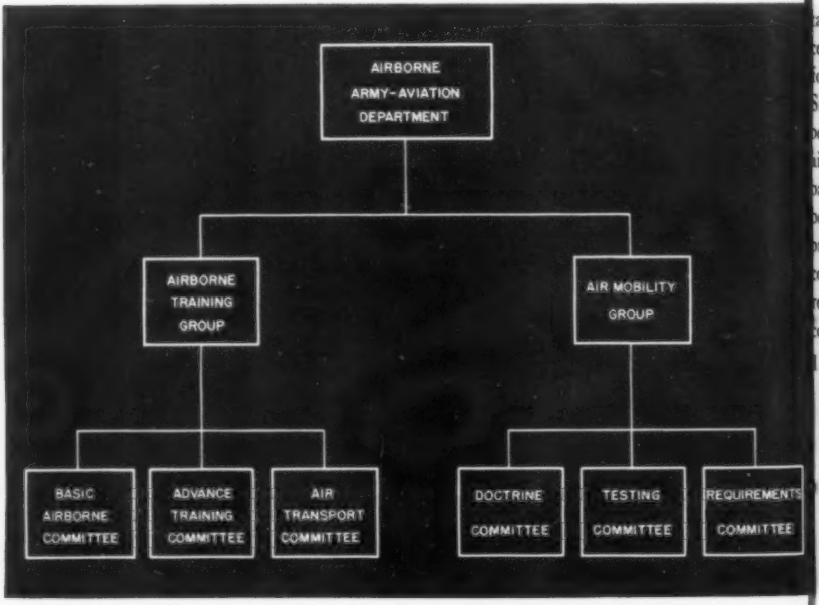
1. To develop, test and evaluate doctrine, procedures, equipment and organization for joint and unilateral army operations involving air mobility.

2. To determine the requirements for the organization and equipment relating to air mobility.

3. To supervise the preparation and revision of training literature.

A considerable amount of work has been accomplished by this new group. Its initial efforts have been devoted to providing interim guidance for commanders, staff officers and other interested personnel for planning and executing tactical operations employing army transport aircraft (both fixed-wing and rotary wing) in support of ground units. It has produced a draft field manual, FM 57-35, Army Transport Aviation Combat Operations, which is now in the hands

Figure 1. Organization, Airborne-Army Aviation Department.



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of CONARC for approval. Meanwhile, The Infantry School has produced a special-text version of this manual for current resident and extension-course instruction (Special Text 57-35-2). Outlined in the manual and in the material taught at The Infantry School are concepts for the employment of air-landed forces and utilization of army aircraft. Since the size of the air-landed unit will be limited by the number and types of aircraft available these concepts must be based on the aircraft now authorized and being procured for the Army aviation program. Consequently, the following concepts apply to air-landed forces of regimental size or smaller, battalion- and company-size units being normal:

1. Air-landed forces—
   a. Rapidly exploit the effects of nuclear weapons.
   b. Envelop defended areas or traverse natural barriers which hinder the seizure of an objective.
   c. Assist all types of tactical maneuvers.
   d. Assist armored or motorized forces in exploitation or pursuit operations.
   e. Seize critical terrain features, particularly in fluid operations such as pursuit, exploitation and advances to contact.
   f. Reinforce units cut off, surrounded or isolated.
   g. Combat partisan or guerilla forces.
   h. Attack enemy airborne or air-landed forces.
2. Army aircraft—
   a. Move reserves, particularly in defense on a wide front or mobile defense.
   b. Resupply by air.
   c. Concentrate dispersed forces in preparation for a tactical operation.
   d. Disperse forces as may be required following a phase of operations.
   e. Move reconnaissance forces and patrols.
   f. Evacuate casualties.
   g. Move troops and supplies from ship to shore in conduct of amphibious operations.

U-1

Concurrently with the development of these concepts, the Air Mobility Group has studied and is working on problems that must be solved to make the Infantry air transportable. The difficulties to be overcome for air-landed forces are similar to those encountered in developing doctrine and techniques for airborne units. The group is approaching these problems in much the same manner that it approached the air-mobility problem of our first completely airborne unit, the 101st Airborne Division, which is being reactivated at Fort Campbell, Kentucky. This division will have five "combat groups" of five companies each instead of the normal regiments and battalions. Every item of equipment in the make-up of Infantry units is being considered from the standpoint of need in combat operations and its ability to be air-transported by army aviation in the combat zone. The group is reviewing present and proposed Infantry organizations including those being developed under the ATFA concept. It is looking, with a critical eye, at the weight and bulk of Infantry weapons and equipment and making appropriate comments and recommendations wherever air transportability would be hin-

COL JOHN J. TOLSON was graduated from the United States Military Academy in 1937 and then served in this country and Hawaii as a company officer, battalion adjutant and regimental S2. After attending Parachute School in 1941, he was assigned to the 503d Parachute Infantry Regiment as a battalion commander and later as regimental executive officer. In 1945, he was named deputy commander of Rock Task Force at Corregidor. After the war, Col Tolson instructed at the Air University for three years and then commanded the 325th Regiment of the 82d Airborne Division at Fort Bragg. He attended the British Staff College in 1951 and remained in England for a year as U.S. Infantry-airborne representative to the United Kingdom. From 1953 to 1955, he was assigned to the Office of the G3 in the Pentagon. Col Tolson began his present assignment as director of the Airborne-Army Aviation Department, TIS, in 1955.

dered. It follows closely and reviews the findings of tests and operations such as Follow Me, Sagebrush, etc.

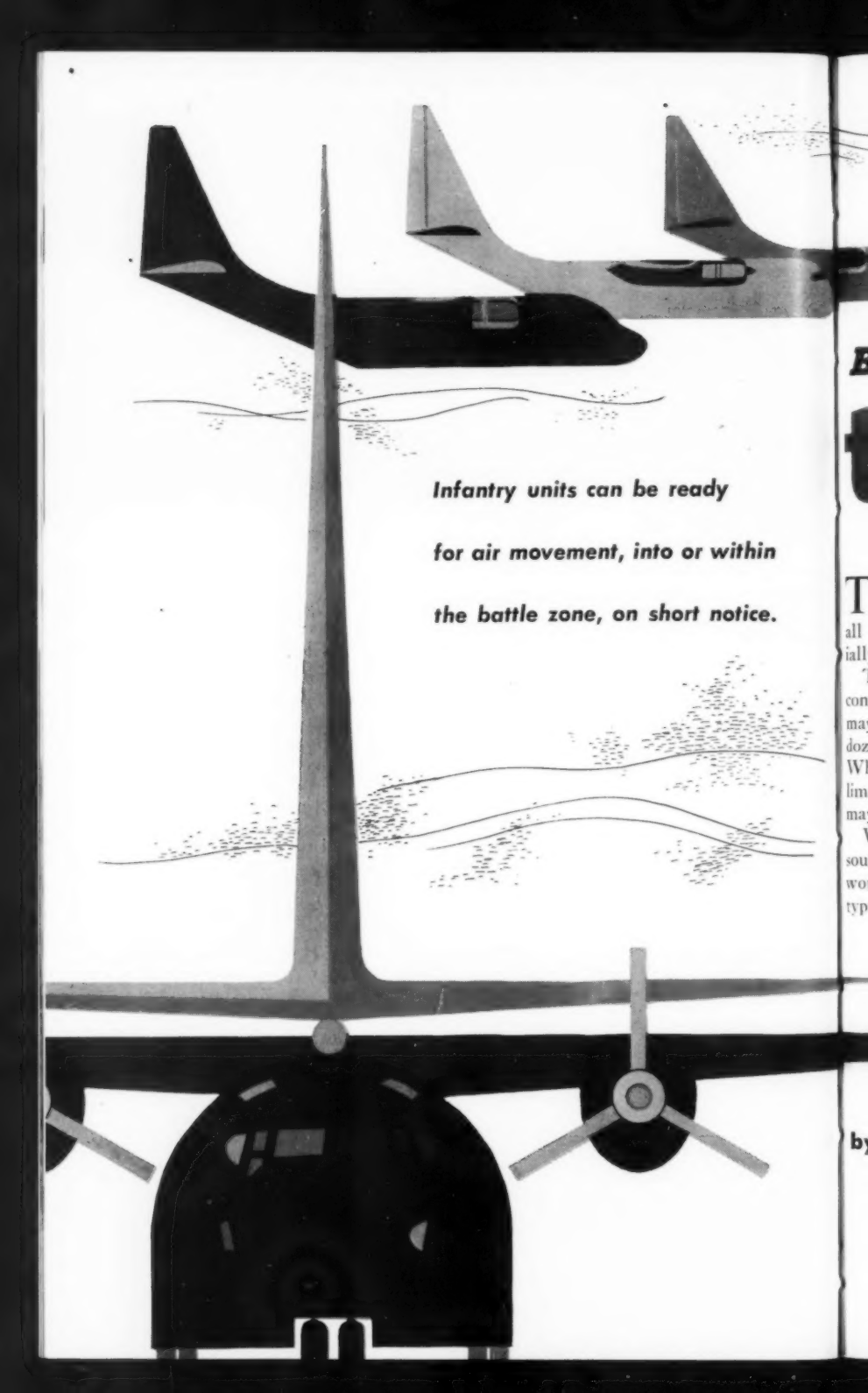
The Air Mobility Group is considering, also, such matters as the need for pathfinder personnel to guide army transport aircraft at the landing area. It is apparent that an agency must be available within the Army for the purpose of controlling aircraft under conditions found in the forward combat area. Upon completion of current CONARC-directed tests at Fort Benning, The Infantry School will be able to recommend the proper placement of pathfinder units within army organizations to achieve maximum utilization of army aircraft. The group is also studying the very important question of where army aviation units should be located within field armies so that the aircraft will be available to move and support divisions, regiments, battalions or other units when needed. The goal is to provide the Infantry commander at any level with transport-aviation support for the accomplishment of any type of mission and to provide the same command relationship as that which exists for Artillery and tank units in the support of Infantry operations.

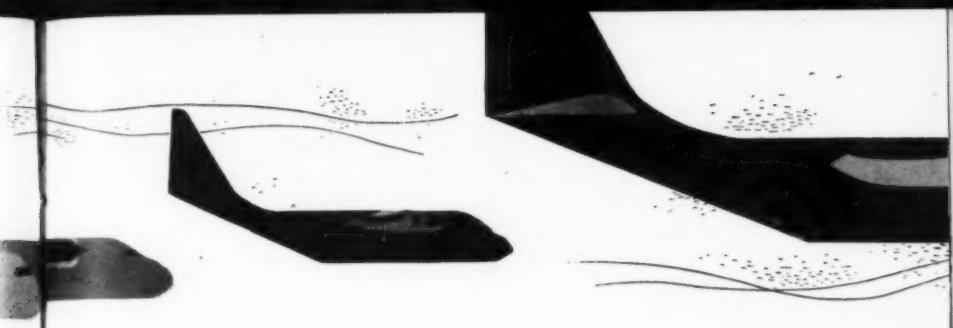
Pathfinder uses visual signals.

This expansion of army aviation in no way alters the role of the Air Force in providing the Army with air support for joint operations,[4] but it will give the Infantry the wings it needs for the movement of units and supplies in future combat operations where speed, mobility and flexibility will be decisive factors.

[4] D/A TC 1–7, 26 January 1956.

Pathfinder guides aircraft to landing area by radio.


Infantry units can be ready
for air movement, into or within
the battle zone, on short notice.



BE READY

to go by air

The Infantry must be capable of moving into combat by air. This means all Infantry—not just airborne or specially trained units.

Today, the threat of aggression is not confined to a specific area. Aggression may occur at any time, in any one of a dozen spots scattered around the globe. When it comes it may be in the form of a limited, brush-fire type of war or it may be all-out war.

We all know that we haven't the resources to station troops all over the world in sufficient strength to meet any type of threat, wherever it might occur. But we must place our forces in strategic positions whence they can be moved to trouble spots. We must be able to move them quickly, either to meet aggression or to prevent it by demonstrating to any potential enemy that such an act will be met by the full might of U.S. forces. To do this we must rely on the ability to air-transport any of our forces, anywhere —in a hurry.

This requirement was emphasized recently by General Maxwell D. Taylor, Army Chief of Staff, when he said: "All but the heaviest armored units should be capable of being air-transported into and within the battle zone."

Not only must Infantry units be capable of moving by air, they must be ready to do so at the drop of a hat without lengthy preliminary planning and training. They must be ready to go on short notice. This can be done with simple and flexible plans that have been carefully and thoroughly prepared in advance. The time to do that planning is right now.

Let's take a look at an Infantry unit that has had experience in moving into combat by air on short notice.

by Capt Robert L. McDaniel

In the spring of 1952, the 187th Abn RCT was moved on about four hours' notice to quell prisoner-of-war uprisings in Korea. In a matter of hours, the Infantry elements of this RCT were deployed from garrisons in Japan to Kojedō Island, Korea, where they enforced the complete subjugation of the rebellious prisoners of war there.

Again in the spring of 1953, when the Chinese 68th Field Army had driven a deep wedge into the lines of the II ROK Corps and threatened the flank of the U.S. IX Corps, the 187th RCT was moved from Japan with little warning to the vicinity of Kumwha, Korea. It moved complete with its organic artillery and the bulk of its vehicles and in just a few days was holding the flank of the threatened corps. These movements clearly demonstrate the potential of strategic air mobility for the Army.

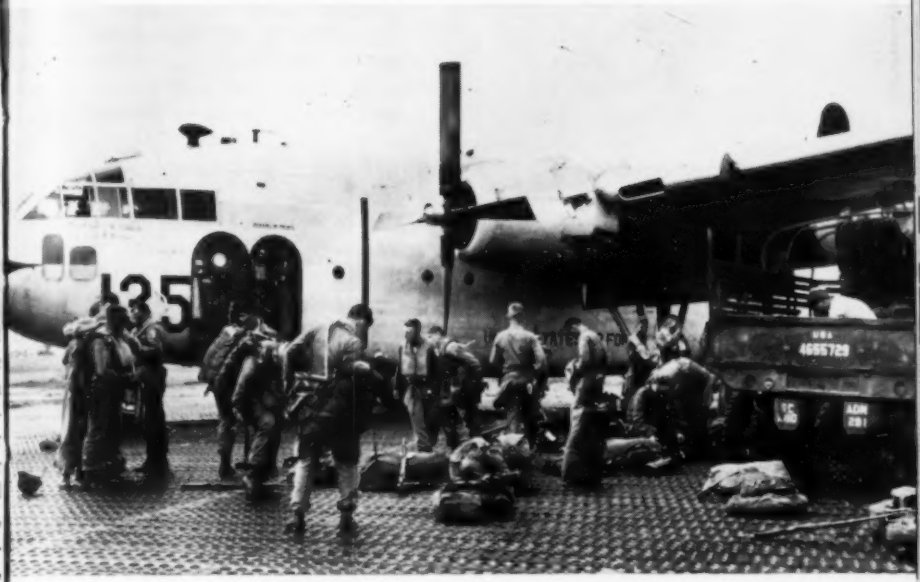
You will say these movements were made by an airborne unit. True, but any Infantry regiment can do the same. In fact, if we are to have a strategically mobile army, every Infantry unit *must* be able to make such movements. Here's how.

SOPs must be developed to separate units quickly from their footlockers, sheets and other permanent-change-of-station equipment. Service elements must be trained to take responsibility for this equipment and to process noncombat unit equipment and personal clothing. Above all, staff planning must be thorough and flexible—and accomplished in advance. A regimental S3 can't make out an elaborate air-movement table while he packs his bedding roll; a company clerk cannot type detailed manifests while he packs unit records and loads his typewriter. Simple and flexible plans must already exist before air movement—and these plans should apply whether the unit is assigned C-119, C-123, C-124 airplanes, or any combination of them. Commanders at all echelons must understand the plans; and unit integrity should be maintained so that leadership can be applied effectively. Leaders must remain in command of their units and not consider themselves just passengers during the move. To accomplish all this, our air-movement procedures must be simplified.

The first and biggest problem involved in any air movement is weight. Total aircraft requirements are based on total weight, just as each plane load is based upon the allowable cargo load of the plane. The allowable cargo load is a much more critical restriction for an airplane than for trucks, railroad cars or boats. The load must be determined for each mission depending on the type and model of plane, range of the mission, temperature, wind and other variables. Until the allowable load is determined, air-movement tables, aircraft-allotment tables, air-loading tables and flight manifests cannot be prepared even if the type of aircraft is known.

Let's discuss the problem of weight a little further. One item is involved in every air-transported operation—personnel. However, determining the weight of personnel causes no problems. Both the Air Force and the Army agree that a combat soldier with his individual equipment weighs 240 pounds. It does not matter if he carries only a pistol and canteen, or a BAR, winter equipment, full ammunition load and a parachute (as he must for all moves in twin-engine airplanes); he still weighs 240 pounds. Using this firm figure, computation of weight requirements for personnel is a simple matter. However, the simplicity ends there.

By far the greatest weight an Infantry regiment carries is its trucks, trailers and heavy equipment. TM 57-210, *Air Movement of Troops and Equipment*



For twin-engine airplanes, air-transported troops wear parachutes. No special training is required but about 30 minutes must be scheduled for briefing and fitting of chutes at loading time.

tells us that a ¾-ton truck without winch weighs 5250 pounds; with winch, it weighs 5550 pounds (the M-37 model without winch weighs 5587 pounds). Eleven different weights are given for the various 2½-ton trucks which might be found in an RCT. Add to these various empty-vehicle weights, the weight of a standard 240-pound driver and the weapons, ammunition and communication equipment these vehicles must (or will) carry, and you have a different loaded weight for every vehicle in the regiment. Like our standard 240-pound soldier, we need a standard weight for each type of *loaded* vehicle in the regiment. Similar to the 240-pound man, the standard weight for vehicles must represent all the vehicles of that type in the unit. Experience in the 187th Abn RCT's moves indicated that ¾-ton trucks were often overloaded as much as 100%. From this, a standard weight of 8500 pounds can be assumed. This weight also fitted the ambulances, provided they were not used as cargo carriers. Thus, we have a standard weight for the forty ¾-ton trucks of the regiment. Similarly, with a 150% overload, ¼-ton trucks weigh 4500 pounds and ¼-ton trailers weigh 2000 pounds. Other trailers carry up to 100% overload so the 1½-ton trailer weighs 8400 pounds and the ¾-ton trailer weighs 4500 pounds when loaded. Incidentally, this latter weight also applies to the 250-gallon water trailer. With a 100% overload the various 2½-ton trucks weigh about 22,000 pounds. This weight also applies to the 5-ton wreckers. You will note that the weight of a loaded 2½-ton truck exceeds the maximum allowable weight of most medium troop-

carrier planes. We'll discuss overloads in more detail a little later. But as a planning figure, 22,000 pounds for a 2½-ton truck is still good.

With these six weights, we can load all of our vehicles with the equipment they must carry. Based upon its own experience and the establishment of definite overload limits, every unit can develop similar specific, standard weights.

You may wonder if the Air Force will accept these weight figures. It will if the figures are conscientiously derived and honestly observed. Naturally, more than 3000 pounds of ammunition could be loaded in a ¾-ton truck but not without an obvious violation of the system. Actually, the troop-carrier commander has no choice but to accept the weight figures prepared by the transported unit. He has neither the facilities nor the time to weigh each vehicle. For this reason, the maximum weights must be meticulously observed and should be the result of accurate determination by army-unit leaders.

The allowable cargo load for each mission is established as the maximum payload with which the aircraft can safely fly in the judgment of the troop-carrier commander. This figure is established after consideration of many variables and is based on the experience of routine troop-carrier operations. This does not mean that the plane will crash the moment the allowable cargo load is exceeded, but the load should *never be intentionally violated*—even in combat operations.

This truck is obviously overloaded. Facilities or time may not permit weighing of loads. Army commanders must conscientiously observe established allowable loads. While driving vehicles into aircraft violates current teaching, it is often easier to drive loads, especially towed loads, directly into the airplane and they can be backed out of medium airplanes almost as fast as they can be driven out. Unless you expect to land in the face of the enemy, let the skill of your drivers and the tactical situation determine how you load your vehicles.

With these basic weights, preparation of the aircraft allocation table will take only minutes once the allowable cargo load is announced and can be issued to units on their arrival at the departure airfield or marshalling areas in the vicinity of the airfield.

Let us assume that a battalion reports 897 men, forty-eight ¼-ton trucks, four ¾-ton trucks, eight 2½-ton trucks, thirty-four ¼-ton trailers, two ¾-ton or water trailers and two 1½-ton trailers. Using the sample figures from our earlier calculations, five minutes of arithmetic will show:

897 men	@	240 =	215,280 pounds
48 ¼-ton trucks	@	4,500 =	216,000 pounds
4 ¾-ton trucks	@	8,500 =	34,000 pounds
8 2½-ton trucks	@	22,000 =	176,000 pounds
34 ¼-ton trailers	@	2,000 =	68,000 pounds
2 ¾-ton or water trailers	@	4,500 =	9,000 pounds
2 1½-ton trailers	@	8,400 =	16,800 pounds
Total for the battalion		=	733,080 pounds

Assuming an allowable cargo load of 16,000 pounds, 46 airplanes in a block should be allocated to this battalion (733,080 ÷ 16,000 = 45+). The battalion commander has his unit intact and can make allocations to the companies based on his desired order of arrival. It should not take him more than a few minutes to do this. If time permits, commanders should check allocations by computing actual airplane loads for subordinate units. For example, with 42 troop seats in a C-119, personnel alone cannot fully utilize a normal allowable load of 16,000 pounds (42 men @ 240 = 10,080 pounds). Vehicles of the heavy-

Load spreaders and tie-down devices are provided by the troop-carrier commander. How they are used is a safety factor and must be determined by the pilot.

weapons or headquarters companies will have to be loaded with personnel of the rifle companies to fully utilize the plane in some cases. This should be done at the lowest possible level considering normal attachments and tactical unity. Dispersal of key staff and command groups with their vehicles throughout the air column will assist in making these adjustments.

In the battalion cited above, the commander might allocate five planes to a rifle company with 189 men and four

¼-ton trucks with trailers, attach a staff group with four men and a ¼-ton truck and three antitank squads with twelve men and three ¼-ton trucks. The company commander could load his planes as follows:

Four planes—39 men and a ¼-ton truck with trailer = 15,860 pounds
One plane—29 men and two ¼-ton trucks = 15,960 pounds
One plane—20 men and two ¼-ton trucks = 12,800 pounds

Other company loads are done in a similar manner with as little trading of men and vehicles as necessary to fully utilize the allowable load.

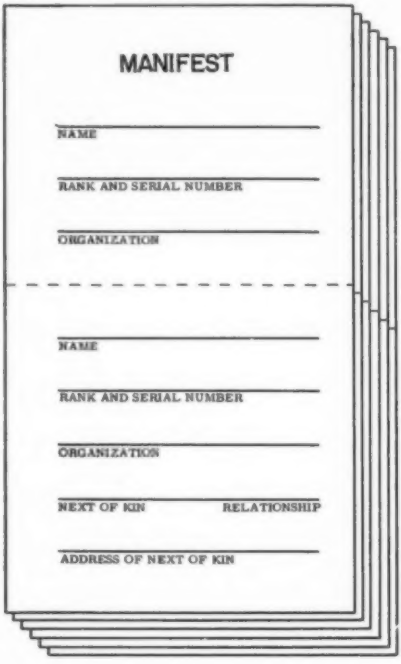


Figure 1.

Each man completes a manifest tag before loading. The lower half is collected at "station time." The bundle of tags for each plane is stapled and the cargo load and plane numbers are entered on the back of the lower half.

A few words on making up the airplane loads: distribute your vehicles throughout the planes as evenly as possible. Use personnel to fill out the allowable load. If a large proportion of vehicles is taken, the bulk of each load will be vehicles. Always load towed trailers or guns with a vehicle which can pull them. Load a ¾-ton truck with howitzers and 1½-ton trailers even if that is not their normal prime mover. The 2½-ton truck is normally a full load by itself and can be placed in an adjacent plane. When using medium transport aircraft, some of the load from the 2½-ton trucks must be loaded on another plane. Keep these trucks and their loads in adjacent airplanes and detail personnel riding with the load to handle the reloading at the arrival airfield. The truck driver can't do it alone. The 5-ton wrecker weighs too much and should be left behind with the kitchens. If a large proportion of vehicles is not taken, you may not be able to utilize the full allowable load for each airplane without exceeding the number of troop seats. This can be done in some cases, but check with the troop-carrier commander first. It may involve reshuffling of parachutes and other problems.

Once plane loads are determined, manifesting begins. Current Joint Troop Carrier-Airborne Operations SOPs require the use of lengthy manifest forms and our current training involves typing copies of lists of personnel and equipment carried on each airplane, along with the computation of weight and balance data. This time-consuming step could not be taken in a true tactical situation so to use it in tactical training is unrealistic. Complete manifesting can be accomplished at the aircraft using manifest tags similar to those shown in Figure 1. These tags are issued to each man when he arrives at the plane and is ready to load. Each man completes his own tag

All towed loads should be loaded with a prime mover. In this case the 2½-ton truck which normally pulls this howitzer is being loaded in an adjacent airplane.

and they are collected by the senior army man aboard. Flight-line personnel are detailed to pick up the lower halves of the tags at station time. The man collecting the tags confirms that the number of tags is correct. He then staples them together and enters the airplane number, the chalk number and the vehicular load on the back of the bundle of tags. The upper half of each tag is retained by the senior army passenger. No other manifesting is necessary. If, for some reason, multiple typed copies of manifests are required later, they can be prepared from either half of the tags when time permits.

Notice that no weight and balance computations by the unit to be moved are included since they are not needed. Air Force regulations require that all aircraft loads be balanced by the pilot using a "Handbook of Weight and Balance Data" or a mechanical "Load Adjuster" which are provided with each airplane. The computation of movements by army units is complicated and the data must be adjusted to the basic weight of each individual airplane with its present fuel load. The final decision on where a load is placed must be made by the aircraft commander and any computations made toward this end by army commanders are wasted.

The same applies to the computation of lashings. The Joint Army-Tactical Air Command SOP states that the troop-carrier commander is responsible for "supervision of loading and lashing of equipment . . . briefing and supervision of loading personnel . . . (*and providing*) tie-down devices, load spreaders, and other auxiliary equipment." Army personnel can do no more than put the load

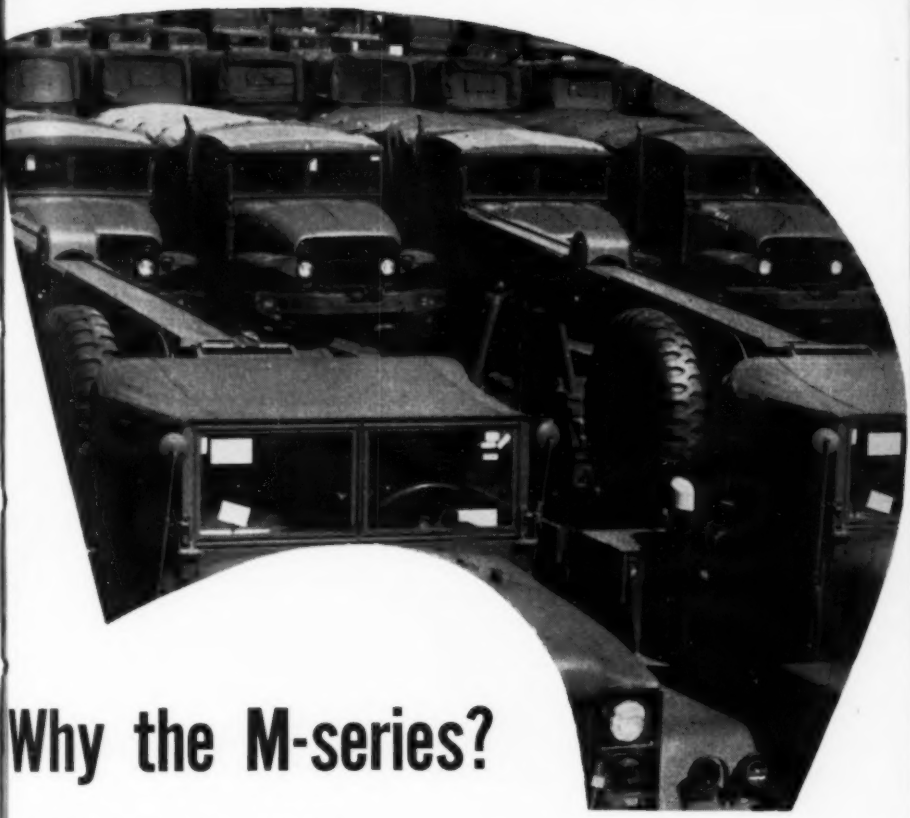
in the plane and fasten it down at a place and in a manner decided by the pilot. The pilot and his crew are qualified by training and experience to determine these safety measures and responsibility for this cannot be assumed by the Army. This means that the driver of a truck loads his vehicle wherever and however he is told by the airplane crew and then he applies the number and type of tie-down devices determined by the plane commander. This should not take more than 15 minutes for any vehicular load in medium transport airplanes. Again the final decision rests with the pilot and any computations on the number and type of lashings done by the Army are wasted.

How about the airplane mock-ups and the 16-hour Minimum Subject Schedule prescribed in TM 57-210? Mock-up and time to conduct special training may not be available in a combat situation. Loading vehicles in medium troop-carrier airplanes is no more complicated than backing or driving a truck onto a grease rack. For the C-124, however, loading is more complicated and some training will be necessary or additional time for loading must be scheduled. Except for getting the vehicles onto the planes, the responsibility is with the Air Force and we do as we're told. Six hours of the 16-hour Minimum Subject Schedule are devoted to tie-down devices, computation of loads and the theory of lashing for which the Army has only a limited responsibility. Fewer than eight hours are devoted to practical work in loading and lashing of equipment. If time is available for special training, it should be devoted to training drivers to back into tight spaces and to apply standard tie-down devices. Any air-transported operation requires teamwork and each team must play its own part.

Movements utilizing army aircraft follow the same basic principles. The commander of the transported unit is responsible for allocating his men and material into groups that conform to the payload of the assigned aircraft. Only the ground commander can do this to maintain unit integrity and pattern the loads to conform to his ground tactical plan. These loads are delivered to the airplane and then loaded, as directed by the pilot. It's as simple as that.

The above techniques were developed for actual operations and successfully used in combat air-loaded operations by the 187th RCT. Ponderous staff planning, duplication of effort, needless administration and lack of flexibility will destroy the value of air movement. Let's keep air movements simple and flexible so that we can be ready to go—by air—at a moment's notice.

Capt Robert L. McDaniel has a wide range of airborne experience. He is a master parachutist and has accumulated more than nine years of service with airborne units. A 1945 graduate of the United States Military Academy, Capt McDaniel was assigned as a company commander with the 187th Airborne Infantry Regiment in Japan. Returning to this country, he served two years as a company commander with the 11th Airborne Division and then as a company commander, assistant S3 and S3 with the 187th Airborne Regimental Combat Team in Korea. He returned to the United States in 1954 and was graduated from The Infantry School's advanced course. Capt McDaniel was training publications officer, Publications and Visual Aids Office, TIS, before starting army-aviation training at Gary AFB in May.



Why the M-series?

By CWO JAMES M. HANLEY

Today's Infantryman does much of his traveling in military vehicles known as the M-series. He may not know them by this name but he does know that the vehicles he uses are fast, rugged and dependable.

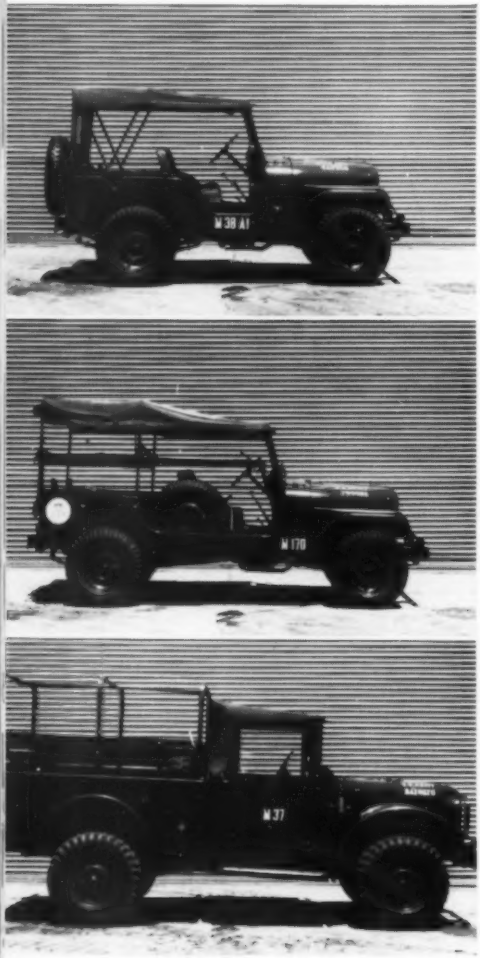
Many of us who remember the outstanding service given by our trucks in World War II may not realize that our current wheeled vehicles will outperform their counterparts of that period. And we may wonder why so much time and money have gone into the development of the M-series family of vehicles.

Yes, the vehicles of a decade ago did

World War II wheeled vehicles did a remarkable job — but their performance could not match that of today's M-series.

a fine job. They were called upon to perform almost unbelievable tasks and seldom were found lacking. General George S. Patton, at the end of World War II, expressed the widespread affection for the 2½-ton truck which helped our army roll to victory: "If ever a monument is

Top to bottom: **the M-38A1, ¼-ton truck (jeep); M-170, front-line ambulance; M-37, ¾-ton truck.**

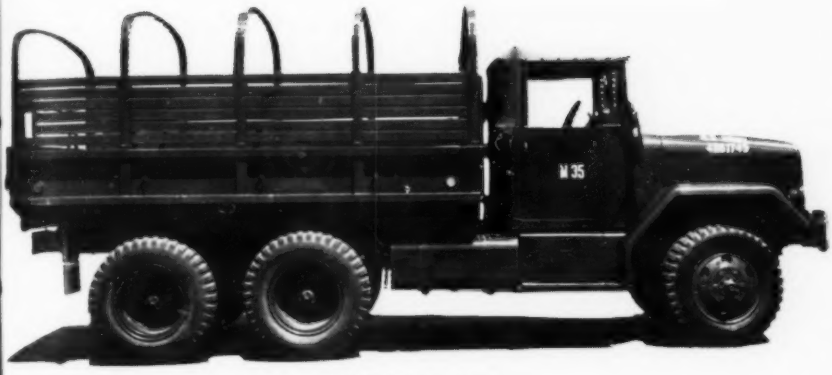


built to honor equipment, the 2½-ton truck and the C-47 aircraft should be the leading contenders." Without question, the 2½-ton truck deserved this praise; it was the backbone of our mobility during that war.

But in spite of an impressive record in World War II and Korea, the 1941-1945-vintage vehicles had their shortcomings. They were essentially civilian vehicles—slightly modified to meet military requirements. Commanders reported that they were difficult or impossible to start in extremely cold weather. Electrical systems failed during fording or in humid areas. Engine power was inadequate in some situations. Supply and maintenance were constant problems because parts were not interchangeable with other vehicles of the same type built by different manufacturers. Because the trucks were uncomfortable and hard to handle, drivers became fatigued quickly.

Working with these and similar comments from the field, Ordnance began the job of improving the Army's fleet of tactical wheeled vehicles. The objective was to develop vehicles with strictly military characteristics from road to roof. After drafting specifications for each type of vehicle, Ordnance invited truck manufacturers to submit pilot models to meet these specifications. When pilot models had been tested, the following manufacturers began to produce M-series vehicles: Willys (jeep); Reo and General Motors (2½-ton truck); Dodge (¾-ton truck); Continental, Mack, White, Auto-Car, Diamond-T (5-ton and larger trucks).

A look at the development of the new 2½-ton truck will give us a typical illustration of how the M-series went from the drawing boards to Korea. After deciding to concentrate on the Reo and GMC designs, Ordnance awarded Reo a contract for 5000 interim vehicles to



M-35, 2½-ton truck.

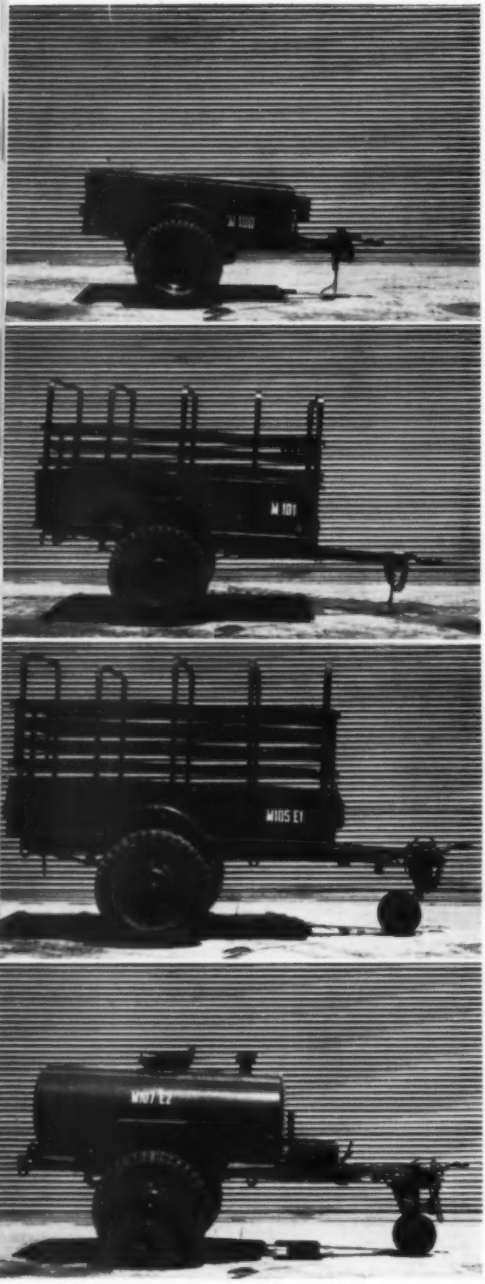
replace unserviceable 2½-ton trucks manufactured during World War II. The first production models reached military supply channels early in 1950. It should be pointed out, however, that these were not intended to be standard equipment. Research, development and troop testing were to continue. GMC kept testing its hydra-matic version, the M135.

In June 1950 hostilities began in Korea. The sudden demand for trucks brought to a temporary halt plans for further research and development. Vehicles were needed—fast. Recognizing that Reo's production facilities were limited, Ordnance accepted the GMC 2½-ton and it was soon rolling off General Motors production lines in large quantities. Demands for transportation were so great that World War II vehicles of all tonnages had to be rebuilt in Japan, Germany, Italy and the U.S. Most of the wheeled vehicles used in the Korean fighting were World War II rebuilds. The first M-series vehicles did not reach units in Korea until late 1952. Ultimately, ¼-ton, ¾-ton, 2½-ton and 5-ton artillery trucks saw service there. Transportation Corps units and the few front-line outfits which used them reported good results.

In spite of their performance record, some commanders did not care for the new vehicles at first. The initial issue of spare parts lagged, some special tools were needed for maintenance and repair (e.g., spark-plug wrenches) and there were few qualified, service-school-trained maintenance personnel. There was a general mistrust of new equipment which had not yet proved its combat usefulness. And, of course, the minor faults developed by any vehicle during its first use by troops caused many commanders to long nostalgically for their faithful World War II jeep and "deuce-and-a-half."

Today, however, one seldom hears such complaints. Spare parts and trained personnel are available. Mechanical faults have been corrected. Our new family of vehicles has proved itself after nearly four years of constant use.

The M-series corrected many faults of the World War II vehicles. The old 6-volt electrical system was replaced with a 24-volt system, making it possible to crank the engine faster and longer before the battery goes dead. In addition, a primer pump was included for use in extreme cold. A receptacle was added to the vehicles to permit simple, immediate connection of a cable to an external power source in case of battery failure.



Interchangeability of parts is one of the big advantages of M-series vehicles. All instruments are interchangeable from truck to truck. Axles on the 2½-ton are interchangeable front to rear and side to side. Many components of the electrical system are now common to M-series vehicles of different tonnages. They include gauges, spark plugs, distributor parts, generator-regulator assemblies, etc. These and other improvements have reduced the number of spare parts that must be stocked and carried around by the using organization. Requisitioning is more simple. This logistical saving goes all the way back to the factory and reduces the amount of transportation and shipping required to maintain our vehicles in the field.

Maintenance time has been reduced by the development of a power package (engine, radiator, transmission and transfer case) and a simple quick-disconnect device on the power-package wiring and linkages. This power package may be removed as a unit and replaced in approximately one and a half hours. It isn't even necessary to remove water from the radiator or oil from the crankcase. To do this on one of the 1941-1945 vehicles required 12 to 30 hours depending on the size of the vehicle and the skill of the mechanics. The ability of Ordnance personnel near the front to switch power packages swiftly will be important in combat. A commander can have a vehicle back in action quickly while the faulty power package is removed to the rear for repair in an Ordnance shop.

The electrical system of M-series vehicles has been made completely moisture- and fungusproof. Also, these vehicles are sufficiently waterproof to un

Top to bottom: **the M-100, ¼-ton; M-101, ¾-ton; M-105E1, 1½-ton; M-107E2, 400-gallon water tank.**

dertake normal fording. Fording kits are available to permit complete-submersion fording. These can be installed in a matter of minutes.

Added horsepower has increased the vehicles' mobility. Horsepower has been boosted about 33% in the ¼-ton and 37% in the 2½-ton trucks.

Gross highway weight of the World War II jeep was 3650 pounds, for a vehicle developing 54 horsepower. The M-series jeep (M-38A1) weighs 3890 pounds and is rated at 72 horsepower. The old 2½-ton weighed 20,350 pounds and developed 91.5 horsepower. The M-series 2½-ton (M-35) weighs 23,380 pounds and develops 127 horsepower.

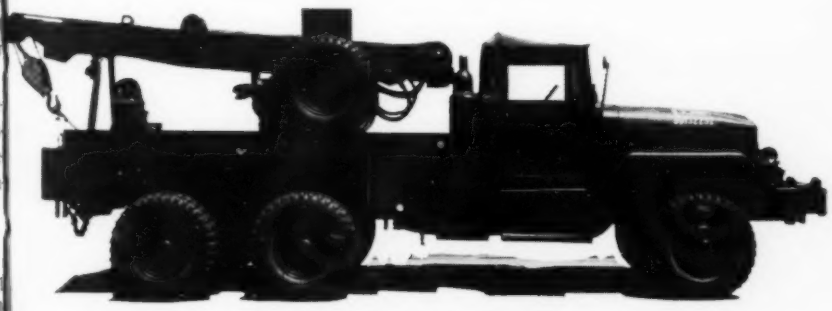
While these vehicles cost slightly more than their World War II counterparts, they result in over-all economy. Less maintenance is required by using organizations and fewer man-hours are required by Ordnance maintenance. Parts are longer lasting. For example, spark plugs are guaranteed for 25,000 miles. Fewer spare parts are required and deterioration by water, fungus and weather has been reduced or eliminated.

More comfortable seats and better protection against the weather make driving less fatiguing. Steering is easier, brakes have been improved, all manually operated transmissions are synchromesh. The fully automatic transmission on the M-135 and M-211 eliminates the need for manual shifting.

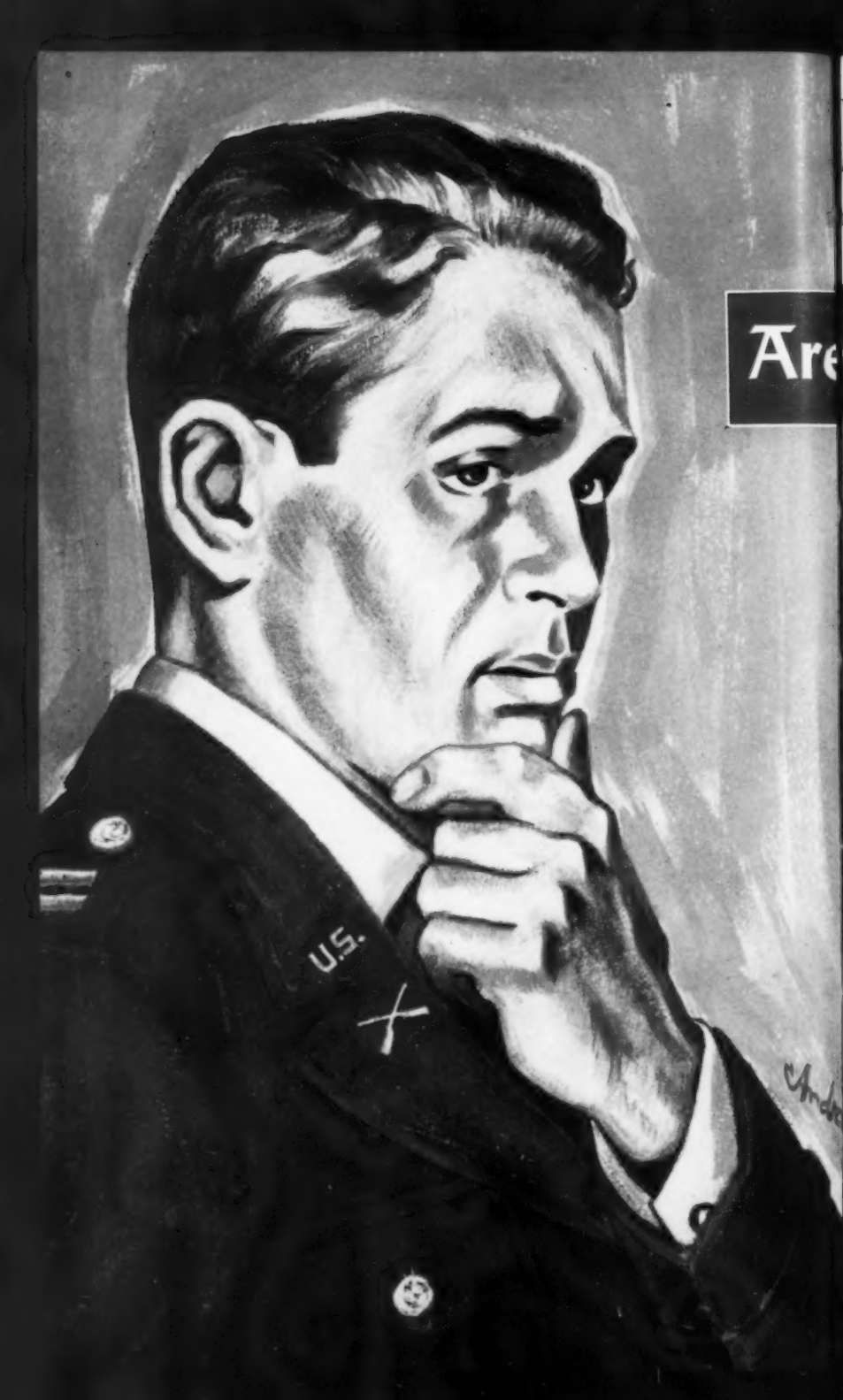
Yes, World War II trucks were good—but the M-series vehicles are better. Like all good equipment, they require proper maintenance to "keep 'em rolling." To get the full benefits from these improvements, our drivers and mechanics must be fully qualified to operate and maintain their vehicles. It is up to commanders to make the necessary inspections to insure that prescribed maintenance is performed correctly.

The M-series is the best ever but, with continued research and redesign, the vehicles of tomorrow's army are certain to be even better, more economical and easier to maintain.

CWO JAMES M. HANLEY enjoys answering the perennial question, "Why?" His article in the July 1955 Infantry School Quarterly was titled "Why Governors?" Now he explains "Why the M-series?" During the Korean conflict, he served as Shop Officer, 21st Direct Support Ordnance Company. He recently left The Infantry School for an assignment with the 181st Transportation Battalion in Germany. At Fort Benning, Mr. Hanley was chief of the Advanced Engines Committee, Automotive Department.



M-62, 5-ton medium wrecker.


U.S.

We need a program to insure

that Infantry officers are better prepared for

the many management responsibilities of command.

re ou prepared to Command?

A real problem facing the Infantry today is the proper training of our officers for command responsibilities. The problem results not only from more complex Infantry techniques and equipment but also from a rather disturbing attitude within the Infantry today.

Many career officers are interested only in tactical command assignments—because they feel that any other assignment is a digression that will jeopardize or slow up promotion and hamper their progressive rise to higher command. Actually, many officers are promoted and do progress to higher tactical command without the assignments in specialist fields which they need to be effective commanders. Too many officers are reaching senior grade without adequate qualifications for the jobs they are called on to perform.

The question immediately arises: "What do we mean when we say they are not adequately qualified?" It means simply that they are not adequately prepared for the many management responsibilities of command because they do not know enough about the capabilities, limitations and problems of communications, motor transport, support weapons and staff procedures.

By COL ROBERT E. HOLMAN

One might suspect that the fault lies in our military educational system for Infantry officers. But let's take a look. An examination of the Infantry program reveals that our leader-type courses are based at three levels: the basic course at platoon level, the intermediate course at company level and the advanced course at battalion or regimental level. The programs of instruction for these courses indicate that they give the Infantry commander all the knowledge he could reasonably be expected to have in order to successfully command any type of Infantry unit. The trouble is not in these courses but rather in the use the officer is able to make of the training received. For most officers much of the value of schooling is lost because they make no practical use of it. For those who do, a problem is created. Take, for example, the officer graduate of automotive or communication specialist courses at The Infantry School. When this officer joins a unit the chances are very good that he will be assigned to a motor-officer or communication-officer job. This is as it should be. He should not, however, be forever tagged with what he has come to consider a "trick" MOS. To do so makes

him feel that any MOS other than 1542 brands him as a specialist and prevents him from getting command experience. Since the highest positions in the regiment in these specialties call for the grade of captain, he also believes that his promotion possibilities have been decreased.

This kind of practice and thinking have produced some chaotic results. Career officers have avoided assignments to specialist jobs insofar as possible, and once assigned to them have resorted to almost any means to get transferred. The unpopularity of specialist training was demonstrated by a recent survey made at The Infantry School which revealed that in the last 10 years only 19 regular officers have taken the Infantry motor transportation course and only 65 have taken the Infantry officer communication course. The tendency has been for the young officer to say, "I am going to be a commander; communications and automotive maintenance are for the specialist and for that reason I have to know little about them." These two fields of specialization, related as they are to the problem of increased mobility, are presented as examples of how we are failing to produce the well-rounded Infantry officer who will be so badly needed to conduct the type of warfare contemplated in the future.

A career-management program is needed which will insure that our junior officers are given training *and experience* in more of the TOE positions in the Infantry regiment prior to their promotion and assignment to higher command. We need a program that will cause career officers to welcome and even to seek certain specialist assignments as necessary steps in their progress to higher tactical commands.

Now that the problem has been stated, some recommendations concerning a solution are in order.

Before World War II there was a system of training in the Artillery which was based on job rotation within batteries, battalions and groups. An officer was not allowed to pass on to higher assignments until he had completed mandatory work in the fundamentals. This program was very successful and produced well-rounded officers. Today we often hear senior Infantry commanders ask such questions as "Why is it that maintenance and communications are so much better in the Artillery than in the Infantry?" "Why is it that I can get through on Artillery communications channels faster than I can on my own?" The answer is that the Artillery has devoted more attention to these vital questions and its commanders at all levels understand the need for good communications and have had actual experience in their maintenance.

We in the Infantry need a program that will give our officer the experience he requires. The first step in developing such a program must be a clear delineation of assignments he should have as he climbs the career ladder. Naturally, he must get tactical command experience. So our system must insure that he is given the opportunity to command the rifle platoon, the rifle company, and ultimately the battalion and regiment. But just as important, he must be given experience that can be gained only through actual service with other units in the Infantry regiment. The Infantry commander must be able to manage and use effectively his support weapons, communications, motor transport, tanks and reconnaissance elements. He must also be able to get maximum effectiveness from his staff. To prepare him to do this our program must require that he serve a tour of duty in each of these six essential fields, between the time he is commissioned a second lieutenant and the day when he assumes command of a battalion as a lieutenant colonel.

If we take a look at the assignments available in the Infantry regiment for

officers in the rank of lieutenant through lieutenant colonel (see Figure 1, page 41) we note that there are a number of assignments in each of these fields which will provide the experience he needs.

To better understand how such a program would work let's trace the career of a hypothetical officer who has just received his commission as a second lieutenant. He is given a 1542 MOS. He takes the basic Infantry officer course and is assigned to a rifle platoon overseas. He commands the platoon for a year and then is given an assignment as platoon leader of a weapons platoon—machinegun, mortar or heavy mortar. At about this stage he is promoted to first lieutenant. When he returns to the ZI he takes the communication course at The Infantry School and then is assigned as a communication platoon leader. Six to eight months later he becomes executive officer of a regimental tank company. He serves in this assignment for a little less than a year then takes over an I&R platoon. Seven months later he returns to The Infantry School for the associate company officer course. While at the school he also attends the automotive course following which he becomes a battalion motor transportation officer. Near the end of this tour he is promoted to captain. He now goes overseas again where he is given a rifle company. A year later he becomes the battalion S4. He completes his overseas tour in a special assignment at army headquarters and returns to The Infantry School for the advanced Infantry officer course. Upon graduation he is assigned to a regimental S3 section and following promotion to major becomes the S3. Next he becomes the executive officer of a battalion following which he goes to Washington for staff assignments in Department of the Army. While there he is promoted to lieutenant colonel. Next, he is selected to attend the Command and General

Col Robert E. Holman, director of The Infantry School's Automotive Department, was commissioned a second lieutenant in the Infantry upon graduation from Clemson A&M College in 1933. He came on active duty early in 1941 and served two years as maintenance officer and assistant G4 with I Armored Corps and Seventh Army in North Africa, Sicily, Italy and France. After the war, he was adviser to the Guatemalan General Staff and then returned to this country where he was graduated from the Command and General Staff College. Col Holman next served successively as battalion commander, G4 and regimental commander in the 9th Infantry Division. After a tour as assistant G4, Eighth Army, and G4, IX Corps, in the Far East, he returned to this country for his present assignment at The Infantry School. He leaves The Infantry School this month to attend the Industrial College of The Armed Forces.

Staff College at Fort Leavenworth and upon completion of the course is ordered overseas again to command an Infantry battalion.

I believe you will agree that our hypothetical officer should be well equipped to handle this assignment.

This is how our program might work for one officer. It could work in a similar manner for all of our officers who are to progress to higher command. The specific assignments, sequence and time spent in assignments will vary but each would end up with the experience needed for tactical command. The variety and number of assignments available and the time span between second lieutenant and lieutenant colonel provide considerable flexibility in achieving this goal.

This idea of rotating our officers certainly is not a new one. Our current policy requires that each commander limited only by requirements of his mi sion and the availability of personne exploit the opportunities available in h command for rotating duties of his su ordinates. But in actual practice prop rotation is not being achieved. To hel make our program work we need on more element. We should use a digi system with the command MOS 1542 t indicate at a glance an officer's progres at any point in his career toward qualifi cation for higher tactical command as signments. Such an indicator would as sist career management, unit personne officers and unit commanders in the place ment of officers in proper assignments. I would serve as a constant reminder o the assignments needed by each officer It would cause the officer himself to we come needed assignments and motiva him to seek essential tours of duty that he might otherwise attempt to avoid.

The digit system could work like this The numbers 1 through 4 would be us to indicate the four tactical command a signments from platoon leader throu regimental commander. A dash would placed after MOS 1542 and the appro priate number entered as the officer served in each of these command slots These digits would be followed by a slash. Numbers 1 through 6 would be as signed to the other required types o assignment. That is:

Weapons assignment	1
Communications assignment . .	2
Motor-transport assignment . .	3
Tank assignment	4
Reconnaissance assignment . .	5
Staff assignment	6

Again the appropriate number would be placed on the officer's record for eac assignment in one of these fields. An en try on a captain's record might look lik this: 1542-1/1245. We can see at glance that he has commanded a rif platoon and that he has had assignmen

ith weapons, communication, tank and connaissance units. It is also immediely obvious that he needs an assignment rifle company commander and a tour f duty in automotive and staff jobs.

The system we have described plus the igit system as a constant reminder hould go far toward eliminating the resent tendency for many officers to reeive repetitive assignments in one type f job—command, specialist or staff. As epetitive assignments are reduced or liminated, additional tactical command nd other essential slots will be opened p and more officers will be given the pportunity to obtain required assignents.

It might be argued that the rotation f officers would impair the efficiency of egiments. This might result initially for short period of time but in the end the regiment and the entire service would benefit as officers progressed up the career ladder. It is agreed that this system is best adapted to peacetime operations but it could form the basis of our officer development even in time of war. A system of rotation front to rear was used to a limited degree in Korea so that as many officers as possible could gain combat experience.

Now is the time to harden the corps. Let's beat the drum for a program that will give our officers the well-rounded background they will need as higher commanders. And while we are waiting for such a program let's put our own house in order. If we are commanders let's see that our subordinates get the experience they will need. If we are junior officers let's seek the specialist assignments that enable us to manage and use effectively the tools we will have when we reach higher command.

Figure 1.

OFFICER ASSIGNMENTS IN THE INFANTRY REGIMENT

Colonel	NBR OF SLOTS	MOS
Regimental Commander	1	1542

Lieutenant Colonel	NBR OF SLOTS	MOS
Regimental Executive Officer	1	1542
Battalion Commander	3	1542

Major	NBR OF SLOTS	MOS
Regimental S1	1	2110
Regimental S2	1	9301
Regimental S3	1	2162
Regimental S4	1	4010
Battalion Executive Officer	3	1542
Battalion S3	3	2162

Captain	NBR OF SLOTS	MOS
Rifle Company Commander	9	1542
Heavy Weapons Company Commander	3	1542
Tank Company Commander	1	1203
Heavy Mortar Company Commander	1	1543
Service Company Commander	1	2910
Regimental Headquarters Company Commander	1	2900
Battalion Headquarters Company Commander	3	1542
Motor Transportation Officer	1	0600
Communications Officer	1	0200
Assistant Regimental S3	1	2162
Battalion S1	3	2110
Battalion S2	3	9301
Battalion S4	3	4010

Lieutenant	NBR OF SLOTS	MOS
Rifle Company Platoon Leader	27	1542
Rifle Company Weapons Platoon Leader	9	1542
Machinegun Platoon Leader	3	1542
Mortar Platoon Leader	3	1542
Tank Company Platoon Leader	4	1203
Heavy Mortar Company Platoon Leader	3	1543
Antitank Platoon Leader	3	1542
Communications Platoon Leader	1	0200
Intelligence & Reconnaissance Platoon Leader	1	1542
Counterfire Platoon Leader	1	1542
Security Platoon Leader	1	1542
Pioneer & Ammunition Platoon Leader	3	1542
Regimental Headquarters Company Exec. Officer	1	2900
Rifle Company Executive Officer	9	1542
Tank Company Executive Officer	1	1203
Battalion Communications Officer	3	0200
Assistant Regimental Motor Transportation Officer	1	0600
Battalion Motor Transportation Officer	3	0600
Heavy Weapons Company Reconnaissance Officer	3	1542
Heavy Mortar Company Reconnaissance Officer	1	1543
Heavy Mortar Company Gunnery Officer	1	1543
Liaison Officer	3	1542
Graves Registration Officer	1	2430
Assistant Regimental S1 (A&R)	1	2110
Assistant Battalion S3	3	2162

There is a big difference between talking and teaching. Teaching demands better organization and the use of interest factors.

The trim instructor's ribbons attest to a wide variety of service. Two hundred students sit in a well-ventilated, well-lighted classroom. The instructor opens with a rousing introduction that catches the students' interest and suggests that something worthwhile is to follow. Then he gets into his subject. He seems to know what he's talking about. His words are well chosen. He is enthusiastic and genuinely sincere. In fact, he seems to have stepped right out of a page in our manual for instructors. You are interested and ready to follow

BY MAJ JOHN T. CARLEY

him. He starts to discuss the first of five major teaching points, explaining that one must consider several factors to understand and apply this point. You are with him and manage to hang on through point number two.

Then it happens! You find yourself replaying the third shot on the seventh hole and wondering whether the trouble was in your grip or backswing, or perhaps you are considering how much you can get on a trade-in for your car. You are not with the instructor. Periodically you snap out of your reverie and try hard to keep tuned in—but again and again you drift down more inviting, less resisting channels of thought. Then, through the fog you hear, "and in summary . . ." Instinctively you fold your maps and get set to move on.

As you leave the classroom, you find yourself wondering what happened. You learned nothing, yet it didn't seem like a bad period of instruction. You think, "Maybe it was just me."

The odds are high that it wasn't "just you."

If you carefully analyzed the class described above, you would very probably find that the trouble was in the organization of the material, the failure of the instructor to properly integrate interest factors into that material, and the absence of any medium or device to bind the instruction together to form a coherent pattern.

Experienced instructors don't often make these mistakes; most of them have learned the hard way to sense class reactions. They've come to understand that unless they can maintain the interest of the class they cannot teach. They have learned that there is a great difference between talking and teaching.

Figure 1.

It is not necessary to get this lesson in the rough-and-tumble school of experience. You can learn it at the outset and practice it effectively if you have the prerequisites of a good instructor and the courage to work at your job.

Hang on and we shall see how. Look at Figure 1.

Notice the stem through the center of this leaf and the tiny veins leading away from the stem. The leaf is like a period of instruction. The instructor must move

is class from the base of the stem to its ip—his teaching objective. Sounds easy, ut watch out for those tiny veins. The tudent's mind may stray down any one f them. Some students will drop off at ach vein—unless you prevent them. our problem is blocking these veins ust before you and your class reach hem. They can (in fact, must) be locked by "interest factors." Some time-sted interest factors are:

1. Properly asked, thought-provoking questions.

   For example here are two questions on the same subject:

   a. "When and where was the Gettysburg Address given?"
   b. "What was the central theme of President Lincoln's Gettysburg Address?"

   Example b is a more effective interest factor because it stimulates thought and requires the student to reason.

2. Clean humor that is tied in with the instruction.

   It is a rare joke or humorous experience that cannot be reworded slightly and made to support a point that you are trying to get across.

3. Practical exercises.

   These are probably the best interest factors of all.

4. Recorded interludes.

   Most schools or units have tape recorders that can be used to good advantage. For example: When your students have completed a requirement in a map exercise you can present your (instructor's) solution by saying, "Let's visit the command post and hear firsthand how the commander handled this problem." (Tape-recorded solution by voice other than your own.)

5. Demonstrations, skits, combat examples and personal experiences are good interest factors when skillfully used.

There are many others. These are our tools. However, it is up to you to make them work just as in the case of the Mississippi farmer. Mr. Farmer bought a dilapidated little farm, took up his tools and set about getting his farm in shape. After three years of hard work he had developed the farm into a going concern. The local parson stopped by one Sunday for a visit. The parson was full of praise for the appearance of the farm and commented to Mr. Farmer that, "You and the Lord have done a fine job on this farm." Mr. Farmer thought this over for a moment and replied, "I reckon you're right, parson, but you should have seen this farm when the Lord had it by himself."

Up to this point we have been discussing some of the various types of interest factors. We have discussed them as separate items for the purpose of clear identification and understanding of just what interest factors are. Actually, this is a somewhat artificial and perhaps misleading treatment. In practice, these interest factors are not inserted into a presentation as independent items but are blended into the material so as to become an indispensable part of the presentation of each teaching point. The same thread of thought which you are trying to impart to students is woven through all interest factors relating to that point. The teaching points or must-know information which you must put across to your students are always the heart of a period of instruction. But it is not enough simply to "say" these teaching points and expect students to learn. The teaching points must be made interesting, they must be made understandable and, in the end, they must be put to practice by the student to insure retention.

The key to using these tools is an understanding of another term, "interest span." Let's say that for our purposes the interest span of an individual is the num-

ber of minutes that he can give his full attention to the oral presentation of a subject that is not inherently interesting. (Most of our subjects are not inherently interesting.) Take another look at Figure 1. The distance along the stem between the bases of the tiny veins might be compared to the average student's interest span. In other words, if an instructor has successfully blocked off the first pair of veins before losing the students, he can expect reasonably good student interest until he nears the next veins, when he must set up other blocks. The instructor faces the cyclic problem of creating high student interest and pounding home a point before it runs down. Before interest lags, he introduces other interest factors and drives home another point, etc.

There are many kinds of leaves, each of which has a similar, though different, structure or pattern. In different leaves the veins which branch out from the stem do so at irregular intervals. The same is true of students. Each has a different capacity for concentration. This capacity or interest span not only varies between individuals but also varies with a single individual. Time of day, physical comfort of the student, importance of the subject and the personality of the instructor all influence interest span. We could cite an average interest-span figure based on observation of thousands of hours of instruction and thousands of students at service schools. But these figures are dangerous if one is inclined to be a bit literal in his thinking.

Rather than use a mechanical interest-span figure to guide us in our initial organization of a class, it is best to rely on our own evaluation of the natural interest or natural "boringness" of each item to be taught. There is no synthetic substitute for human judgment in evaluating beforehand the various factors which influence the average interest span of a group of students. During presentation an instructor must continually apply his judgment in sensing student interest. He must adjust the placing of interest factors and teaching points as necessary for effective teaching.

Now let's go back to our introductory situation and see exactly what happened by making a graphic analysis of that period. Remember, our instructor seemed to do everything just right but he failed to teach. The analysis in Figure 2 shows what went wrong with his instruction.

Notice that the vertical scale represents degrees of student interest. Teaching can take place at any level between excellent and just above zero interest because the students are thinking with you. They may not be agreeing with you, but they are following your presentation and, you might say, they are available to be taught. The horizontal scale, along the line of zero interest, shows the time in minutes of a 50-minute period. The graph line shows the rise and fall of average student interest produced by our instructor's presentation.

In Figure 2, student interest starts at a good. This is generally the case because at the outset of a period, the students are curious to know "what this bird is like." Or, if the students have heard the same instructor before, they may be hoping that he will do better. Students are less kind after a succession of dull, unimaginative, uninteresting recitations by the same instructor. Our instructor capitalized on this high initial interest by a strong introduction which raised interest even higher. Then, he put across two of his five teaching points. After that, about 10 minutes in this case, he was all alone. His teaching was over for the period. Some few students were able to rejoin him periodically and pick up one or two more of the five main points. But they found it tough going.

There happened to be an experienced

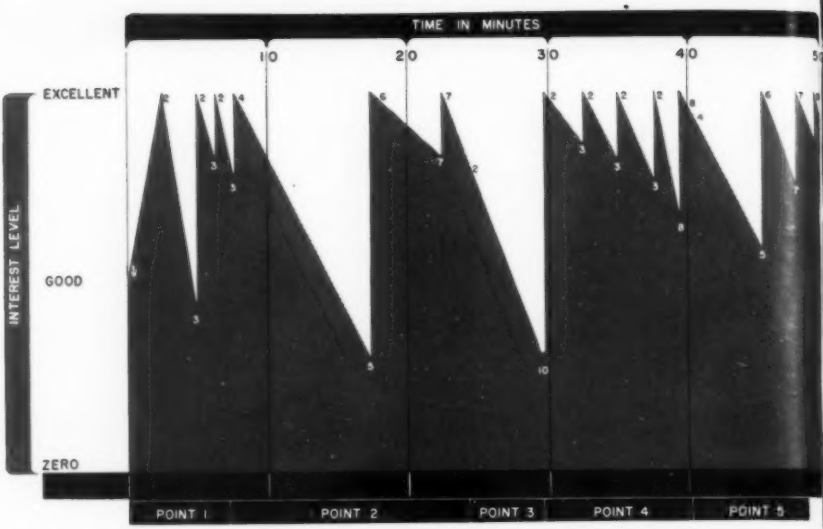
Figure 2.

structor in the classroom that day. He ad the courage to tell our instructor iend the hard truth. It came as a ock; a genuine disappointment, for the structor had tried very hard. There as initial resentment and even weak enial; only weak denial because our instructor had sensed that something was rong. Then as pride gave way to realzation he asked for advice in rebuilding le class into a going concern. The patrn is almost always the same.

The two of them got together and ent to work on the class. They analyzed graphically as we have. They found xactly what we did concerning student terest, but they found more, too. They ound that our instructor had not oranized his five points into a logical seuence. Instead of starting at A and proressing through B, C, and D to E, or reverse order, he had started at C nd worked alternately forward and ackward. It is confusing to start at the ne of departure and work forward to e objective while at the same time you e working backward to the assembly area. This had to be corrected to preserve the logic inherent to the subject of the period. In this case our two instructors decided to start at the beginning and move forward.

It was the hardest, most tedious kind of work, but they probed further. They found that the five points were treated as separate items rather than as integral parts of a single subject. They were not tied together by any "teaching vehicle" or story that would give life and movement to the period and help the student to understand where he was going, and where he had been once he got there. They decided to create a character named Lt Herman Boswell and to make the presentation a story about him. Through this fictitious character and his platoon's experiences, the five main points could be put across. Herman Boswell was nothing more than baling wire to tie the presentation together. He became the teaching vehicle.

The reassembly of the period took place slowly. The two instructors estimated the time required to develop each



Key: 1—Combat example, 2—Discussion by instructor and students, 3—Thought-provoking question, 4—Practical exercise (Boswell), 5—Call for student solutions, 6—Discuss student solutions, 7—Tape-recorded solution by "Boswell," 8—Skit, 9—Summary, 10—Humor (Boswell)

Figure 3.

point. They searched for the dull, basically uninteresting parts of the presentation and fit them snugly between strong interest factors.

The class was beginning to look pretty good. Our instructor rehearsed it several times and made minor readjustments here and there.

He then taught it to another group of students while his instructor friend made a graphic analysis of the period and the student reaction to it. Figure 3 shows how the presentation turned out this time. This figure will take a bit of study for full understanding, but the story is there. In studying it, review first the key to the numbers. Then, notice these points in particular: A variety of interest factors was used to maintain a high average-interest level throughout the period. The teaching points were developed in sequence from one through five. Instruction time was allocated to teaching points according to their complexity rather than by making equal allocations to the five points. In this instance, point number two was the most difficult. The instructor took approximately 16 minutes for its development and used a practical exercise, which is both an interest factor and an excellent teaching method, to get the point across. The practical exercises, humor, skit, recorded solutions and most of the questions were woven around Lt Herman Boswell and his platoon to give continuity to the presentation. The graph indicates that the instructor correctly estimated the average student-interest span for the various parts of his presentation and successfully "blocked the veins" before reaching them.

The system of graphic analysis in Figures 2 and 3 is unimportant except insofar as it helps to explain the concept. These figures serve only to show a picture of the idea. It is never possible to

completely accurate in plotting such a will-o'-the-wisp as student interest. After much practice in using this analysis system, you can come remarkably close in reducing a period of instruction to picture form and in locating the parts of a presentation which need livening up. The observer making such an analysis must rely mainly on his own reaction to the presentation and his observation of student reactions such as fidgeting, doodling, dozing, their responses to questions and other outward signs of boredom or interest.

Some people condemn the use of interest factors as entertainment or wasted motion, while others misuse interest factors as nonproductive entertainment devices. Both are equally guilty of malpractice. Neither of them teaches very much. It is the wise teacher who recognizes that he can cause students to learn only when he has their interest. He knows that student interest does not come free of charge nor does it last long when it does come. It comes and is maintained as a result of hard work and skillful planning by the instructor.

Are *you* talking or teaching?

MAJ JOHN T. CARLEY is very much at home in a military classroom. He has observed more than 3000 hours of instruction and taught in seven instructor-guidance courses at The Infantry School. A 1945 graduate of the United States Military Academy, Maj Carley served as a platoon leader and company commander in the Pacific from 1945 to 1948. After a two-year tour in the United States as a platoon leader, assistant regimental S3 and later as assistant G3, 2d Division, he went to Korea with that unit. He returned to this country in 1951 and a year later attended The Infantry School's advanced course. He is now assigned to the school's Instructor Training Committee.

WHILE ROME BURNED,

NERO FIDDLED

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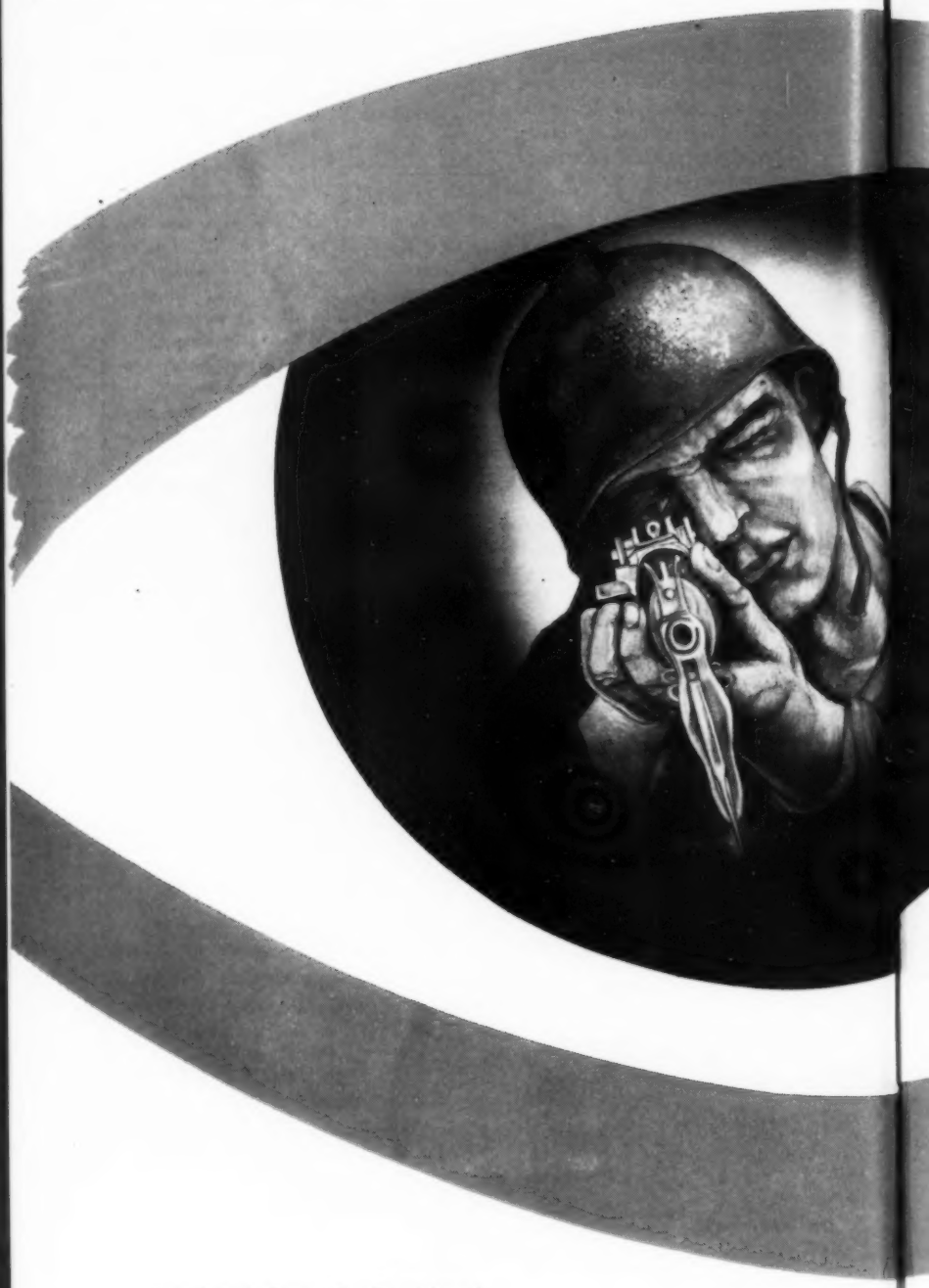


By Maj Gen A. D. Mead

Those who see the whites of their eyes

When an Infantry division of some 17,000 men launches a conventional attack, the initial physical pressure upon the enemy is brought to bear by an astonishingly small band of some 288 stalwarts who comprise 32 of the 243 rifle squads in the division. Similarly, in the normal position defense, a small portion of the division's manpower first meets the physical onslaught of the attacking foe. In both the attack and defense, the accomplishment of the division's mission often depends largely upon the actions of these few men, organized into rifle squads, when they first come face to face with the opposition.

The organization of a tactical unit which contributes so greatly to success on the battlefield as does the rifle squad deserves comprehensive and objective thought and study. This has not always been the case in the past, and even today opinions on rifle-squad organization vary widely and are not confined

solely to Infantrymen. Justification for opinions is equally varied and extends all the way from "the number of seats in a personnel carrier" to "the number of KATUSAs[1] which a squad can absorb"! Seriously, however, the basic divergence of opinion is the large squad versus the small.

To make a squad large or small should not be the *objective* in considering its organization. Instead, the size of the squad should be the result of organizing it to meet certain essential criteria. Although a variety of criteria may be listed, they may reasonably be reduced to three: control, capability for sustained combat and firepower.

The *Dictionary of United States Army Terms* defines a squad as *"a small tactical unit,* on a command level below the section or platoon, consisting of only as many men as a leader can direct easily in the field." At first glance, it would appear that the intent of this definition is to limit the squad to the number of men who can be controlled directly by one leader, unassisted, in the field. However, close study of the definition leads to the conclusion that a squad also could be directed by a leader with the help of an assistant; or, could even be composed of two or more subunits, each with leaders who are in turn controlled by the squad leader. During the past 30 years our rifle squad organizations have from time to time been based on each of the three possible interpretations of the current squad definition. Since 1939, however, our squad organization has included an assistant squad leader. The assistant squad leader was added when the rifle section was deleted from the platoon organization. The current squad organization of the Marine Corps rifle company—13 men with a squad leader and three fire teams each with a leader—al deviates from the one-leader interpret tion of the squad definition.

The reason for rejection of the on leader-unassisted interpretation of th squad definition is obvious. It is simp the result of contemporary military opi ion that it is necessary to have more me in a rifle squad than one leader can co trol effectively. In 1955, Psychologic Research Associates under contract to th Operations Research Office and later t Technical Operations, Incorporate conducted extensive experiments on th organization and equipment of the rif squad. While this study did not genera a recommendation for a specific squa organization, it did conclude that the op timum number of men a single squa leader can control is between three an seven.

To exercise direct control over th rifle squad, the leader must be able t communicate orders to his men by voi and be able to supervise them visually they execute these orders. When th number of men in the organization is great that the leader cannot see and co municate with all of them, he must necessity control them through subord nate leaders. This is true of our presen TOE squad and the squads involved i recent organizational tests which requir the squad leader to exercise his contr with the help of an assistant. This sy tem of control forces the leader to direc his attention in two directions: towar the men under his own immediate supe vision and toward his assistant leader an the men he controls. Under this system the squad leader's effective control is re stricted.

The desirable conditions for squa leadership are those which free the leade from dual responsibility, thus enablin him to concentrate on matters of specif direction. The ability of the squad lea

[1]Korean soldiers assigned to U. S. Army units.

MAJ GEN ARMISTEAD D. MEAD was commissioned in the Infantry upon graduation from USMA in 1924. Prior to World War II he served in Infantry assignments in the United States, the Philippines and Hawaii and was an instructor at The Infantry School. During the war he served in both the Pacific and European Theaters. Later, returning to The Infantry School, he was in turn director of the Staff and Tactical Departments. In Korea he was Assistant Division Commander of the 3d Division. After a tour as Chief of Staff, Third Army, he returned to the Far East and commanded the 1st Cavalry Division. In his present assignment as Chief of Infantry, Headquarters, Continental Army Command, he is the foremost spokesman for the Infantry.

MAJ GEN A. D. MEAD

er to control the actions of the individual members, to insure coverage of the squad sector of responsibility with a volume of accurate fire, and to shift personnel within the squad to maintain the fire of automatic weapons are all directly related to squad size and composition. If we accept as a fact that the maximum number of men a single leader can directly control is between three and seven, and if we consider only the "control" criterion, then we could insure an effective squad by including a leader and four men in our organization. However, there are other criteria. Let us then turn our attention to our second consideration, the capability for sustained combat.

A unit's capability for sustained combat is based on two factors: its ability to carry the necessary ammunition and gear to maintain itself between periods of resupply and its ability to absorb combat losses and still remain an effective combat unit.

The relation of size to staying power is well recognized. Missions assigned to a squad in defense are predicated on the number of positions a squad can occupy, which in turn dictates the frontage of the squad. As attrition occurs, the capability of the squad decreases, fewer positions are occupied, and ability to cover the required frontage is lessened. Attrition through combat or other causes rapidly limits the ability of the squad to accomplish its mission. The immediate results of personnel losses are the loss of firepower and decreased ability of the squad to take and hold terrain. While these considerations apply to a squad of any size, they become more significant when the squad is small at the beginning of an action.

The third criterion for consideration

in the squad organization is that of firepower. Firepower is defined in SR 320-5-1 as "the ability to deliver fire, and the amount of fire delivered by a unit." To this should be added the factor of accuracy of fire. The squad, then, must be capable of delivering an effective amount of accurate fire on a designated target. Added firepower may be obtained by increasing the number of riflemen or by increasing the number of automatic weapons. But if this firepower is to be effective, it must be controlled. Fire control is the ability of the squad leader to open fire when desired, adjust the fire of his squad upon the target, shift the fire of all or part of the squad from one target to another, regulate the rate of fire and cease firing when he wishes. The efficiency with which this fire is employed will greatly affect the squad's ability to accomplish its mission successfully.

The squad requires a balance of semi-automatic and automatic weapons to obtain both accuracy and volume of fire. One of the areas of past disagreement over squad organization centered around the number of automatic rifles considered essential. It is apparent that the number of automatic rifles in the rifle squad must be derived from an analysis of logistical factors, together with the squad's primary mission of assault. The automatic rifle is a relatively heavy weapon with a high rate of ammunition expenditure. The ammunition must be handcarried and, to provide the minimum amount needed, the automatic rifle requires the full-time services of the gunner and part-time services of a rifleman. In the course of its operations, the squad ultimately must close physically with the enemy. While the automatic rifle provides the volume of fire which facilitates this closing, it is not the best weapon for hand-to-hand fighting. This fighting must be done by men armed with rifles and bayonets. From this analysis we can conclude that, although automatic rifles are necessary in the squad, the number must not be so great as to limit unduly the number of riflemen who make the final decisive bayonet assault.

From the foregoing discussion of the effects of control, capability for sustained combat, and firepower on squad organization, a limiting characteristic of a good squad organization appears: *The squad must contain more men than a single leader can control effectively.* Since the system of providing the leader with an assistant to direct part of the squad while the leader directs both the assistant and the rest of the squad is unsound, a squad organization with subunits is clearly indicated. In light of this, our attention is immediately drawn to the squad of the Marine Corps rifle company. The Marine rifle squad of 13 men with a leader and three fire teams is an effective organization that has performed well in combat. (Figure 1.)

Squad Leader (1)

Fire Team 1		*Fire Team 2*		*Fire Team 3*	
Rifleman, Team Leader	(1)	Rifleman, Team Leader	(1)	Rifleman, Team Leader	(1)
Automatic Rifleman	(1)	Automatic Rifleman	(1)	Automatic Rifleman	(1)
Rifleman, Assistant AR	(1)	Rifleman, Assistant AR	(1)	Rifleman, Assistant AR	(1)
Rifleman	(1)	Rifleman	(1)	Rifleman	(1)

Figure 1

Another section-type squad organization which meets the requirements set forth by our three essential criteria is shown in Figure 2. The 101st Airborne Division, to be organized at Fort Campbell, will use a squad of this type.

Squad Leader E6 (1)

Fire Team 1		*Fire Team 2*	
Rifleman, Team Leader E5	(1)	Rifleman, Team Leader E5	(1)
Automatic Rifleman E4	(1)	Automatic Rifleman E4	(1)
Senior Rifleman E4*	(2)	Senior Rifleman E4*	(2)
Rifleman E3†	(1)	Rifleman E3†	(1)

*Best marksman of the four senior riflemen in each squad will be designated as squad sniper.
†E3 rifleman is also AR ammunition bearer.

Figure 2

This 11-man squad organization not only meets all the requirements established by our three essential criteria but also includes additional desirable qualities. First, it requires only 11 men. Second, the five-man fire teams can withstand more attrition than could a smaller team and still retain their identity. Third, the balance of automatic riflemen to riflemen within the teams is in keeping with the squad's ultimate requirement to close physically with the enemy. Finally, the squad leader's span of control is not taxed.

Doctrine for the tactical operations of the 11-man squad should not vary greatly from that pertaining to our current squad. Regardless of the two subunits in the squad organization, doctrine for normal squad operations should not employ the squad as a base-of-fire and as a maneuver element simultaneously. The squad should advance by a strict application of fire and movement — by fire teams as directed by the squad leader, and within fire teams as directed by the team leaders. Fire teams should be consolidated when attrition reduces one or both to the point where they can no longer operate as teams. While battle drills are most appropriate for this squad organization, these drills should be simple and should not involve grandiose maneuvering of individual fire teams. The environment in which a rifle squad lives demands controlled simplicity in all operations.

A rifle squad organized as shown in Figure 2 will provide the Infantry with a small basic tactical unit which, when suitably trained, can perform its mission in that lonesome area where the whites of the enemy's eyes are clearly seen.

Regardless of the nature of any future war or what may occur in its early phases, the major burden of combat will fall on the ground troops of the Army. As long as man lives on the land and depends upon the land for his sustenance, the ultimate decision will be obtained by soldiers on the ground. It is men who win wars — not weapons.

SECRETARY OF THE ARMY WILBER M. BRUCKER

I AM THE INFANTRY

I am the Infantry—Queen of Battle! I meet the enemy face to face . . . close with him and destroy him. For two centuries, I have been the bulwark of our Nation's defense. I am the Infantry! Follow me!

Hardship . . . and glory, I have known. My bleeding feet stained the snow at Valley Forge. With Washington, I crossed the Delaware . . . tasted victory at Yorktown . . . and saw our Nation born. *I am the Infantry! Follow me!*

At New Orleans, I fought beyond the hostile hour . . . discovered the fury of my long rifle . . . and came of age. *I am the Infantry!*

Westward, I moved with the covered wagon . . . marched with the empire across the plains . . . to far-flung outposts on the wild frontier. *Follow me!*

I went with Scott to Vera Cruz . . . battled Santa Anna in the mountain passes . . . and climbed the high plateau. I planted my flag in the Plaza of Mexico City. *I am the Infantry!*

From Bull Run to Appomattox my blood ran red. I served two masters . . . the Blue and the Grey . . . and united again under my banner of blue. *I am the Infantry! Follow me!*

I left these shores with the sinking of the Maine . . . led the charge up San Juan Hill . . . fought the Moro—and disease—in the Philippines.

Across the Rio Grande, I chased the wily villain. *Follow me! I am the Infantry!*

At Chateau-Thierry, I went over the top. I stood like a rock on the Marne . . . cracked the Hindenburg line . . . broke the back of the Hun in the Argonne . . . and I didn't come back until it was "over, over there." *I am the Infantry! Follow me!*

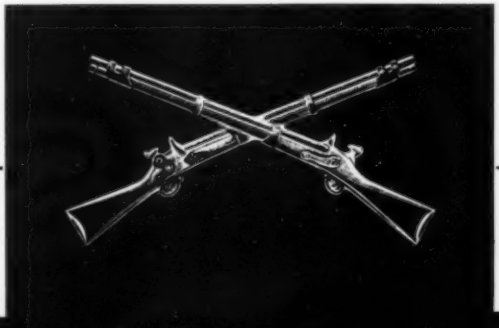
At Bataan and Corregidor, I took a beating . . . licked my wounds and fought back. I invaded Tunisia on the African shore . . . dug my nails into the sand at Anzio . . . and marched into Rome with a flower in my helmet. *I am the Infantry!*

The channel and the hedgerow could not hold me. I broke out of the "Bulge" . . . jumped the Rhine . . . and took the Heartland. *Follow me!*

From island to island, I hopped the Pacific . . . hit the beaches . . . and chopped my way through swamp and jungle. I walked into the face of the Rising Sun. *I am the Infantry! Follow me!*

In Pusan perimeter I gathered my strength . . . crossed the frozen Han . . . marched to the Yalu. Along the 38th parallel . . . and around the world, I make my stand. *I am the Infantry!*

Wherever brave men fight . . . and die, for freedom, you will find me. I am the bulwark of our Nation's defense. I am always ready . . . now, and forever. I am the Infantry—Queen of Battle!



Defensen

sen the Atomic Battlefield

A look at how Infantry might employ nuclear weapons in the defense.

Army Chief of Staff General Maxwell D. Taylor recently stated that we must be prepared to fight a war with conventional or nuclear weapons or with nuclear weapons employed under certain restrictions.

To do this, we must learn not only to use atomic weapons against the enemy under any conditions but we must also be able to defend ourselves against them. Technological developments must not outstrip our knowledge of doctrine and procedures for employment of these weapons.

We must insure that we are developing doctrine and techniques to employ these powerful weapons and we must realize that our opponent, too, can evaluate the effects of nuclear weapons on his own doctrine and can develop means to meet conditions he must face on an atomic battlefield. An outstanding Soviet marshal has said: "We must study their principles, their methods of organization and exploitation of their armed forces. We must do it not out of idle curiosity but to discover their possibilities, to find their strong and weak points and their means and methods of battle. Only knowing this would we be able to oppose them with

By COL T. C. MATAXIS

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better, more modern and—for them—unexpected methods of warfare."

One of our gravest dangers today is complacency. Some people have the feeling that, since we developed the nuclear weapon, we are best fitted to develop doctrine to exploit its use. We need not search too far back in history to see the fallacy of this type of thinking. For example, the British Army in World War I developed the tank and used it quite effectively at Cambrai. However, between World War I and World War II, British and French military doctrine on the use of tanks remained essentially as it was in 1918.

Although certain farsighted men in both the British and French Armies saw the implications of integrating the tank into their armies, they were isolated individuals whose views never got beyond the pages of the military journals. It remained for the Germans to assess correctly the value of these new weapons, to develop new doctrines and techniques and to indoctrinate their whole army in their use.

They theorized, tested and finally equipped their armies with Panzer divisions. With them they defeated the originators of the tank in the battle of France in 1940.

This must never happen to us. Each of us must constantly study changes to our doctrine. We must not only study the changes but also question our current accepted doctrine and techniques in light of these changes to see where further improvements can be made. Today countless experiments, studies and maneuvers are being conducted to determine the type unit and doctrine best suited to fight and win on the atomic battlefield. This question immediately comes to mind: What is the solution if hostilities break out today? How will our present units now overseas operate if the decision is suddenly made to use atomic weapons tactically against an aggressor attack?

In addition to air delivery of an atomic bomb by the Air Force, the Army has today the Corporal guided missile, the Honest John rocket and the 280mm gun. These weapons are in the hands of troops in the field. Realizing this, let us first analyze the effects of the tactical employment of atomic weapons on our current organizations and doctrine of defense and then examine a situation showing the actual planning of a battlefield atomic strike.

The employment of tactical atomic weapons would place added emphasis upon dispersion of units and upon dispersion of command and administrative installations of division and higher units. This in turn emphasizes the need for improved communications and mobility. At division and higher level the type of defense adopted should be dictated by the mission.

If the defender is required to hold a specific terrain feature, a position defense usually offers the best chance of accomplishing that mission. However, if the battle can be fought in sufficient depth (in other words, if we are permitted to exchange ground), a mobile defense may more readily accomplish the mission. In either case the battalion is considered the basic tactical unit.

Enemy use of tactical atomic weapons does not permit us to occupy a defensive position on what we have come to regard as "normal" frontages. Our aim should be to organize our defense so as to present no more than one battalion as a target to a single atomic weapon. With present organization, equipment and concepts it is extremely difficult to present a smaller target since overextension may reduce control and firepower to such an extent that the enemy could effectively rupture our battle position without an atomic weapon.

The position defense, when used o

the atomic battlefield, envisions the organization of an extended position defense. Infantry battalions organize a single critical terrain feature or organize a tactical locality based upon a series of related terrain features. Subordinate units within a battalion should be mutually supporting.

Under this concept reserves must be strong and highly mobile. Counterattack plans must be prepared in detail and, wherever feasible, rehearsed. These plans should provide for exploiting friendly use of atomic weapons forward of the battle position as well as within it. Time permitting, numerous blocking and switch positions should be prepared.

In case of a large-scale enemy attack supported by atomic weapons, plans must provide for the possibility of the entire reserve's occupying blocking positions, relying upon the next higher unit to execute the counterattack.

The current concept of mobile defense envisions the defeat of the enemy by a combination of defensive and offensive action. The mobile defense is organized by a minimum number of units deployed in strongpoints in a forward defensive area to block, impede or canalize the enemy into areas favorable to the defender. The bulk of the force comprises the striking force and is deployed in blocking positions throughout the battle position.

Attack by the mobile reserve is the key to mobile defense. Once the enemy has been canalized by the forward strongpoints onto ground of the defender's choice within the battle position, an atomic strike followed by a rapid exploitation by the striking force should decide the issue.

One of the major difficulties in the mobile defense is the distance between strongpoints which not only eliminates mutual support but makes surveillance of the intervals difficult. It is the responsibility of the higher commander to provide mobile reconnaissance forces to cover the areas between strongpoints.

Deception is important in atomic warfare. As a deceptive measure numerous dummy positions should be prepared simultaneously with the true position. Work on both should progress concurrently. To be effective the dummy positions must closely resemble genuine works, be located where the enemy might reasonably expect to find defensive works and show evidence of an attempt to camouflage. Harassing fires and other activities should be carried out from these positions to further deceive the enemy as to the true location of our position.

The most important problem when using atomic weapons is the timing of the strike to hit the enemy at the height of his concentration while, at the same time, insuring that the safety limits for friendly troops are not exceeded. The burst should be accompanied by a coordinated counterattack or counteroffensive to take maximum advantage of the losses and confusion of enemy troops.

We must emphasize reliability and continuity of communications in an atomic war. While presently authorized communications personnel and equipment are adequate for support of currently organized Infantry units, the dispersion of units and installations will create additional problems. Initially, it can be expected that communication over long distances will be by radio and radio relay. Helicopters and fixed-wing aircraft will greatly facilitate the installation of communications. Emphasis should be placed upon the use of motor and aerial messengers in the event all other means fail under a massive attack supported by atomic weapons. Fully equipped emergency communications teams should be established at all levels down to battalion. These teams would allow reestablishment, with minimum delay, of

communications between a parent unit and a subordinate unit which has been subjected to an atomic burst. Detailed plans by each echelon for each operation will help to insure continuity of effort if communications are disrupted.

Supply and evacuation pose another major problem. The enemy use of atomic weapons may create obstacles which deny the use of roads to the defender. To circumvent this, consideration should be given to storing extra supplies and equipment on position and to extensive use of helicopters for resupply and evacuation.

As can be seen from this discussion, we must place greater emphasis on the formulating of unit SOPs devoted to atomic matters. By concentrating on the development of effective procedures during training periods, detailed issuance of orders is facilitated and loss of control due to damaged communications is minimized after an atomic attack. The following should be included as a minimum in a unit SOP: use of present warning systems to disseminate information that the enemy has employed an atomic weapon, first-aid procedures, reorganization, marking radioactive areas, decontamination and precautions to be taken in the event of enemy or friendly use of atomic weapons.

Next, in order best to illustrate the detailed planning and coordination necessary when using atomic weapons in support of a field army, visualize the following situation.

Following the normal pattern of concentration for the routine spring maneuvers in eastern Europe, aggressor forces launch a surprise attack supported by heavy bombing raids with conventional weapons on all NATO airfields, communications and supply centers.

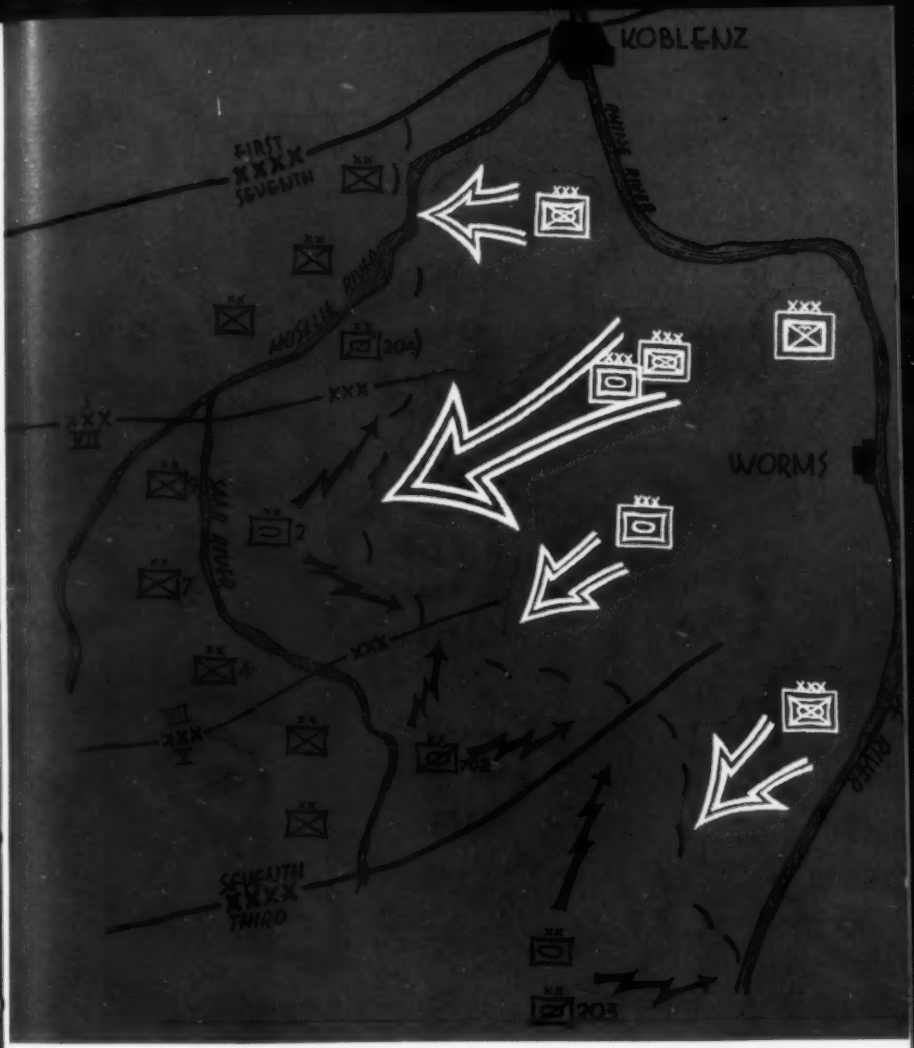
At this time aggressor radio and leaflets pledge that, to "save civilization from complete destruction, atomic weapons will not be used." Because of political pressure in Europe authority is refused at this time for the friendly use of atomic weapons. NATO ground forces must meet the overwhelming masses of the aggressor with conventional weapons. Facing such odds, the NATO forces fight a delaying action to the Rhine River while all available reserves are rushed to positions west of the Rhine.

Once they reach the Rhine, the aggressor forces halt briefly to regroup. During this period all available NATO forces integrate their defensive positions along the Rhine. The heavy concentration of aggressor ground forces supported by massed artillery, mortars and tactical air, forces the NATO commanders to concentrate their divisions to meet the impending attack.

When the attack is launched, aggressor airborne troops supported by the surprise use of tactical atomic weapons rapidly breach the Rhine barrier. Upon seizure of several bridgeheads, aggressor armored and mechanized armies pour across the Rhine. NATO troops are now fighting a delaying action while attempting to set up a new defensive position along the SAAR River. (See Map A.)

Following the enemy's use of tactical atomic weapons, authority is granted to the Theater Commander in Europe to employ our tactical atomic weapons against the advancing aggressor armies. Commanding General Seventh Army, on receiving his allocation from 12th Army Group, issues an order giving the VII Corps 12 atomic weapons to support its defense. Authority is delegated for the tactical employment of atomic weapons within the corps sector to a depth of 20 miles against remunerative targets of battalion size.

After receipt of the Seventh Army defense order authorizing the tactical use of atomic weapons, the corps commander issues his concept of defense of the corps sector. He directs that the following priorities be followed when planning for the use of on-call atomic weapons to sup-



Map A. General Situation.

port the corps defense.

First priority is to be given to attacking remunerative targets forward of the corps battle position. Next, priority is to be given to plans for the use of atomic weapons to support division and corps counterattacks against enemy penetrations. Finally, plans are to be made for the use of atomic weapons to cover the disengagement and retrograde movements of corps units in the event superior enemy forces cause a withdrawal from the present battle position.

After receiving the corps commander's concept, the corps G3 calls his section together and instructs an assistant G3,

the corps special-weapons officer, to go to the 7th Infantry Division and assist it in preparing a detailed atomic-fire-support plan to include on-call fires to support front-line regiments. He says that he is placing special emphasis on providing atomic fire support for the 7th Division because it is defending the most favorable route of approach into the corps sector.

He instructs the deputy G3 to insure that concurrent planning is begun for use of atomic weapons against the enemy while he is approaching the Saar River. He also orders that atomic fire support be integrated into all the corps counter-attack plans and be considered in all studies of possible retrograde actions.

The scene now shifts to the 7th Division command post where staff members are in the throes of organizing their division for defense of the Saar River. At this time the corps special-weapons officer arrives at the division CP. The division commander calls a staff conference at which the special-weapons officer briefs the staff on the projected use of atomic weapons.

"The Commanding General, VII Corps, has requested recommendations by 0800 tomorrow for on-call atomic fires to support the 7th Division. If approved these fires will be integrated in the corps atomic-fire-support plan.

"For planning purposes, the 7th Division has been allocated any three atomic weapons ranging from 2 KT through 75 KT. Only remunerative targets of battalion size or larger will be engaged with these weapons. All delivery means are available to place these weapons on any target in your sector."

Following the briefing by the special-weapons officer, Commanding General 7th Division directs his G3 to contact the front-line regimental commanders and obtain their recommendations for on-call atomic fire support.

While waiting for the regimental commanders and their staffs to arrive for the planning conference on the atomic-fire-support annex, the corps special-weapons officer points out to the division G3 that the corps commander is particularly interested in the division's rear-area installations. Experience on the Rhine River showed that Infantry and Artillery units weathered the initial atomic attacks as well as could be expected but that several division service and command installations were almost completely wiped out. The special-weapons officer and division G3 discuss the actions taken by the 7th Division to minimize the effects of an enemy atomic attack against the division's rear areas.

The G3 says that the division has been particularly fortunate in this respect. In spite of an enemy atomic strike against its rear area when defending along the Rhine River, it had managed to continue adequate support of the combat troops. He described the division's actions before this atomic strike.

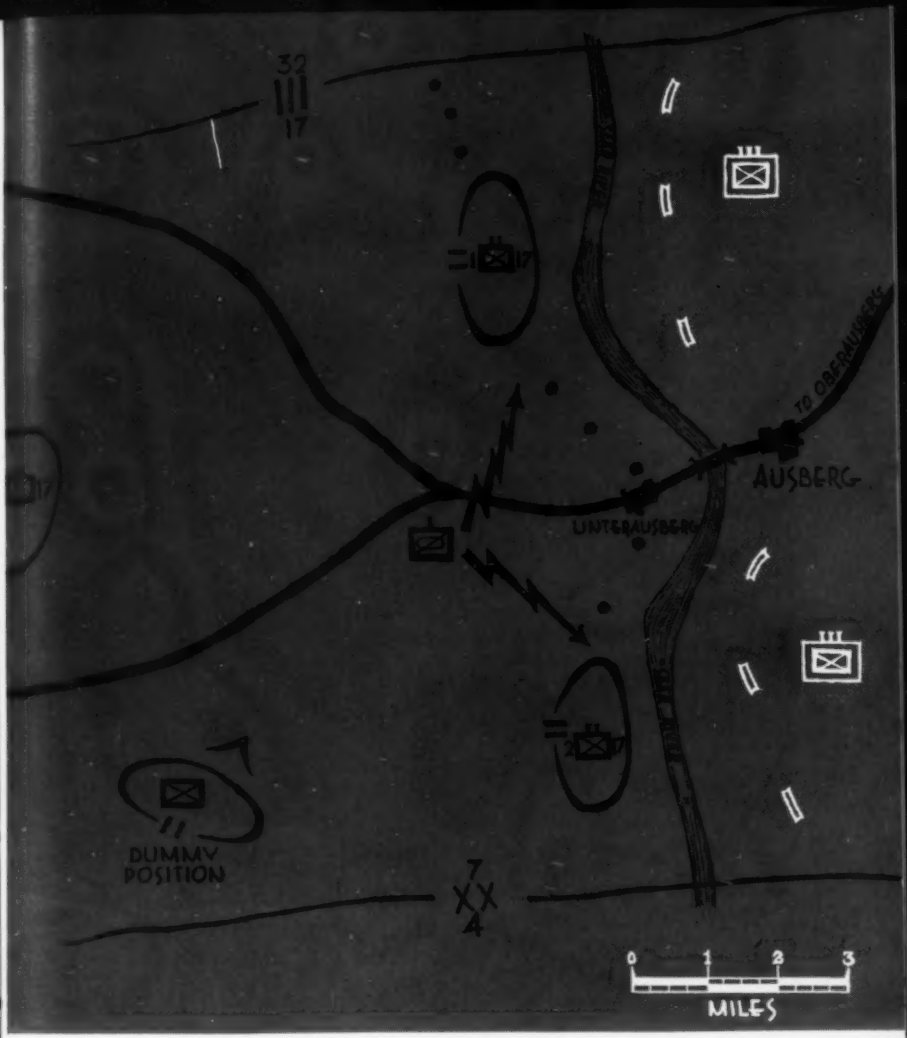
"First, dispersion. We made a survey of the road net throughout the division area. All division service installations were dispersed so they would not provide a profitable atomic target.

"Second, going underground. Individual emplacements, underground CPs and installations reduced the effects of the atomic attack to such an extent that only the installation receiving a direct hit was put completely out of action. The burst estimated at 75 KT did cause severe damage to the Ordnance company's bivouac area and the division command post.

"Third, the establishment of alternate installations. When the division CP was put out of action by the atomic attack, the alternate CP which had previously been established took over command with a minimum of delay."

The G3 then added:

"We're having no difficulty imple-

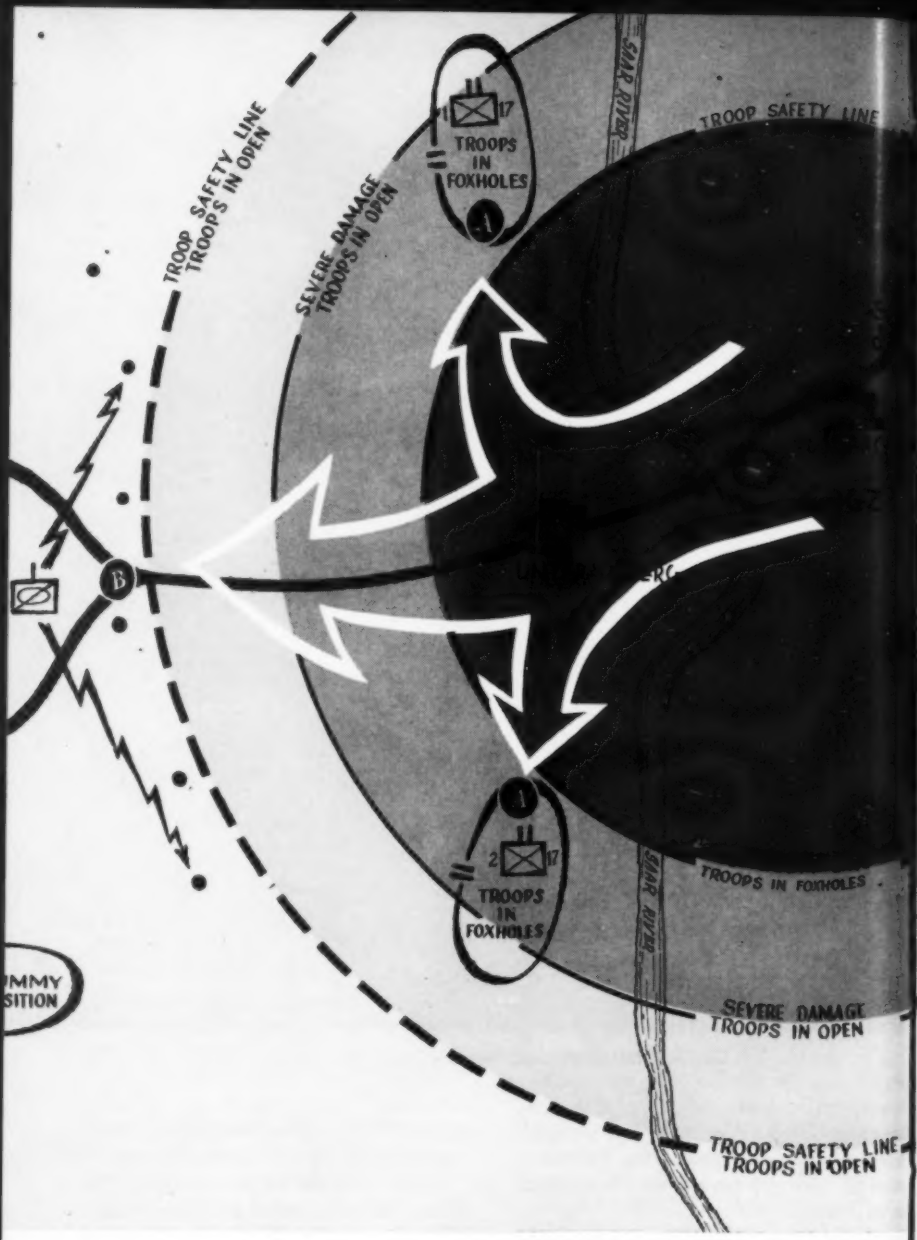


Map B. Disposition of southern regiment, 7th Division.

menting our SOP since moving into this position. Our men are sold on the soundness of it since we weathered that attack near Mainz so successfully."

"I just wish all commanders had paid more than lip service to their atomic SOPs," says the special-weapons officer. "Some of our units are completely ineffective as combat divisions and have had to be taken out of the line because of the losses suffered by their support troops."

At this time the regimental commanders and their S3s arrive at the G3's bunker with maps showing the disposition of their troops and fire-support plans for defending their sectors. (See Map B.) After discussing the defensive dispositions the division G3 makes the following



Map C. Planned use of atomic weapon by front-line Infantry regiment. Note: DGZ is the Desired Ground Zero. Careful coordination is necessary at points "A" to insure safety of troops in foxholes and at point "B" to insure safety of patrols from reconnaissance units.

comments. "As you know, gentlemen, the division commander feels that the 17th Infantry on the south has the most dangerous avenue of approach into the division sector. Accordingly, he has directed that one atomic weapon be made available to that commander to integrate into his fire-support plan. Colonel, what are your recommendations, including ground zero and yield, for use of this weapon in your regimental sector?"

"Well," laughs the colonel, "prior planning pays! It just so happens that we had been hoping for some atomic fire support to help hold our sector." At this time the S3 passes out some marked maps to the G3 and the other regimental commanders.

The colonel continues, "Gentlemen, I estimate that the enemy will attack along the OBERAUSBERG - AUSBERG - UNTERAUSBERG corridor. G2 studies have indicated that for a river crossing in this area aggressor would concentrate troops in the vicinity of AUSBERG with reserves and supporting troops along the AUSBERG-OBERAUSBERG corridor. I feel that one atomic weapon with ground zero as indicated would, if detonated after the enemy attacking battalions had crossed the river, succeed in catching the attacking battalions out in the open and would inflict severe personnel casualties on reserve, fire-support and logistical units closing to cross the river to exploit their initial success." (See Map C.)

The commander of the 17th Infantry also pointed out how the safety line for troops in foxholes would give a margin of safety to his own troops (points A on Map C) while extending over greater distances the radius of severe damage to enemy troops in the open. Plans would be made to insure that all friendly troops would be in foxholes or tanks or, in the case of the reconnaissance company, to the west of the safety line for troops in the open.

The G3 points out that alternate plans must be provided for the use of conventional fire support in conjunction with the atomic detonation.

The plans should include:

1. Shifting of the bulk of nonatomic fires to neutralize enemy targets along the near edge of the severe-effects circle.
2. Placing of fires on routes into the damaged area to prevent enemy reinforcements from entering the area.
3. Harassing fires on key targets within the area of effects to maintain neutralization and prevent reorganization of shattered enemy units.

The corps special-weapons officer interjected his comments. "I'd like to stress the fact that plans must give particular attention to the rapid shifting and massing of nonatomic fires to targets between friendly troops and the area seriously affected by the atomic explosion. This is extremely important because in order to meet troop safety requirements these weapons cannot be exploded as close to our own troops as could be desired, without endangering them. This leaves an area of minor damage in which enemy targets must be engaged by conventional firepower.

"I also would like to point out the necessity of insuring that your nonatomic-fire-support plan is as effective as possible. As you know, even if you are tentatively allocated an on-call atomic weapon for use in your sector, it may be canceled and used elsewhere—if the need there becomes more pressing. You then would have to defend your sector with only those conventional weapons normally available."

Following the meeting with the regimental commanders the division assistant G3 comes into the bunker and asks the division G3 for guidance on the use of atomic weapons to support the division counterattack plan. He has the following questions: What coordination will

be necessary in timing the employment of the atomic weapon and the execution of the counterattack? What is the general concept of how the nonatomic fires will be utilized in conjunction with the atomic attack?

The G3 turns to the corps representative and asks him for his comments on these questions. The special-weapons officer considers them for a moment and studies the situation used in formulating division counterattack plan ALFA, a plan based on enemy seizure of the two forward strongpoints of the 17th Infantry sector.

"First consideration," he says, "is to coordinate the time of the atomic explosion and the time of execution of the counterattack. We must cut to a minimum the time between the atomic blast and the counterattack to allow the counterattacking forces to move into the penetrated area to exploit the damage and shock of the atomic explosion on the aggressor troops before they have a chance to recover. Does this clear this point up for you?"

"Yes, sir," replies the assistant G3. "But what about the troops still in defensive positions?"

"That is a point to consider," says the special-weapons officer. "As you mention, the troops on the shoulders of the penetration will be protected by being in foxholes. However, your major problem will be your counterattack force which will be assembled in the open to exploit the atomic blast. You can adjust your two troop safety lines (troop safety in foxholes and troop safety in the open) by adjusting the DGZ so that both troop units—those on the shoulders of the penetration and those of the maneuver force for the counterattack—are safe. Okay?" As the division assistant G3 nods his assent, the special-weapons officer continues, "Now for the employment of your nonatomic fires in conjunction with an atomic strike to support your counterattack. You heard our discussion with the commander of the 17th Regiment on the use of nonatomic fires in conjunction with atomic fire support in his sector. In this case it will vary somewhat because your troops will be attacking directly into the damaged area. Here you would plan your fires—first across the neck of the penetration to prevent reinforcement, then on aggressor troops not seriously affected by the atomic attack and, finally, plan for fires to support the plan of maneuver of the attacking force."

The corps special-weapons officer remains at 7th Division headquarters until he receives all target information from the division G3. He then returns to corps headquarters where all of this information is included in the corps atomic-fire-support annex.

This is one way in which a defending unit might use nuclear weapons. We certainly must develop various methods of meeting the many situations which may arise on the atomic battlefield. In the warfare of the future, if atomic weapons are employed, a forward observer may well expect to hear "on the way. . . ."

And see the familiar mushroom cloud climbing skyward.

Col Theodore C. Mataxis is well versed in the uses and effects of atomic weapons. He has completed the special-weapons course at Fort Leavenworth, the guided-missiles refresher course at Fort Bliss and has witnessed atomic tests conducted in Nevada. In addition, he has completed an atomic refresher course and studied the problems of defense in the atomic age under the guidance of CONARC. In Korea he commanded the 17th Infantry Regiment. He is now chairman, Company Committee, Tactical Department, TIS.

Inspections need not harass us

if we make them work for our units

instead of against them. We don't have

to "get ready" if we stay ready.

Capitalize on Inspections!

By LT COL W. M. BOYCE

It has become almost routine these days to greet the announcement of an inspection with "weeping and wailing and gnashing of teeth." Far too frequently, the commander looks upon an inspection as a harassing device, diabolically conceived to disrupt his unit and to crush him under an already insurmountable workload. This sort of command attitude destroys the value of an inspection. It is an attitude we must eliminate.

One thing is as certain as tomorrow's sunrise: Inspections are here to stay. There is no substitute for inspection as a means of determining and assuring the effectiveness of our army. Therefore, it is sensible and

logical to capitalize on the inspection process by making it work for us instead of against us.

Inspection activity, examined with a positive attitude, reveals a surprising number of facets which can assist the commander in his all-important command functions.

Most of the so-called harassment that accompanies an inspection occurs in the course of getting ready for it. This happens because the unit to be inspected is not in the good condition it should be and frantically attempts to get its house in order at the last minute. The fault lies with the commander. Either he does not know the state of proficiency in his command or he has failed to maintain it at a proper level. Otherwise, an inspection should cause little excitement and scarcely any disruption of routine. We cannot deny the old axiom: "The best way to prepare for an inspection is to be always ready for an inspection."

This frequently is easier said than done. "To be always ready" requires that the commander be intimately familiar with all of his organization's affairs. He must establish a carefully planned and integrated inspection program of his own, which is continuous throughout the year. At company or battalion level, this program need not be elaborate or involve great administrative detail. It should be simple but so planned that within a stated period of time, all elements, operations and functions of the organization will be critically examined. Such a program will give the commander a clear and current picture of the over-all state of his command.

One good way of starting this program at company or battalion level is to conduct a series of "spot" inspections, in planned sequence. Each inspection should be of short duration and cover only one operation or function. Collectively, however, they will provide valuable information from which the over-all proficiency of the unit can be evaluated. This type of inspection will consume very little time and can be sandwiched in between other duties.

The vital consideration in conducting "spot" inspections is to take a true representative sampling of the unit. For example, when the commander takes a few minutes to spot inspect the barracks, he should not limit the inspection to one building. It is a far better technique to inspect the first floor of one building, the second floor of another, the latrines in a third and so on. Similarly, in a spot inspection of supply accounting he should vary his examination. He should not look at the first 10 pages in each property book but take a random sampling throughout the books. On the next inspection he should examine a different feature in each barracks and different pages in the property books. In addition, he should check for corrective action taken as a result of the previous inspection. Ultimately, in a shorter time than he might realize, the commander will examine, in considerable detail, every phase of his organization's activities.

For reasons seldom apparent, many unit commanders feel that inspection duty cannot be delegated to subordinates. They consider it a task they must perform personally. Actually there are a number of advantages in using subordinates in the inspection program. One is the training the subordinate obtains as he prepares himself for and conducts his inspections. Newly assigned Lt Blank may know very little about unit supply when he is directed to inspect a company supply room. So he must learn something about it before he can hope to accomplish his task. He gets additional knowledge during the course of the inspection itself. As a result, a substantial contribution to the military education of Lt Blank has occurred. But Lt Blank is not the only one to benefit from this experience! The organization itself has gained increased flexibility. If the unit supply officer goes on leave or is suddenly called away, Lt Blank can take over temporarily. Through his inspection of supply he not only has gained considerable knowledge of supply procedures, but he also has a more intimate knowledge of the unit's supply operations. Similar advantages will be gained by inspection of the unit mess or any other operation of the company or battalion.

The executive officer—understudy to the commander—has to be thoroughly aware of the state of the command. What better way is there for him to accomplish this than in the frequent role of inspecting officer? As a result, he truly will be the understudy of the commander, ready and fully competent to take over in an emergency or when the commander takes that well-deserved leave.

It must not be implied that all inspection activity can be delegated to subordinates. The commander himself should spot inspect during and after the subordinate's inspection. If he discovers previously undetected discrepancies, he should determine why the subordinate failed to uncover them. In this way he will train his junior officers in good inspection techniques. By spot inspecting from a supervisory standpoint, the commander obtains a degree of freedom from detail — a flexibility of action which enables him to cover considerable territory in a limited time — and still know the condition of his command at any time.

A planned and integrated program of inspections, then, not only reduces frenzied last-minute preparations to a minimum, but actually becomes a very valuable and useful adjunct to command. There are other advantages. The existence of such a program at all levels — regiment, battalion and company — may reduce the tendency toward excessive formal inspections which has caused considerable and justifiable criticism in many organizations. It might preclude some of the harassment of the inspection cycle

which usually begins simultaneously with the announcement of the annual general inspections. We are all familiar with this cycle. The battalion hastily organizes and conducts an inspection of its companies. A week later, regiment in-

spects the battalions and the companies. Still later, the post or division conducts a command inspection. Finally, the long-awaited IG inspection takes place in an atmosphere of tension, apprehension and fatigue. Then, too frequently, all inspection activity promptly comes to a halt until the next year when again the fateful tidings of the annual general inspection cause firm pressure to be applied to the "panic button" and the annoying cycle is repeated.

Even if this cycle continues, much of the "flapping" it causes can be eliminated by the continuous inspection program. When IGs or any other inspectors arrive to examine the organization, only a "brush up" will be required and then only in those elements where the program has revealed weak spots. There need be no fuss, no frenzied preparations.

Only the briefest departure from orderly routine will be necessary.

We have said that inspections should work for us instead of against us. So far we have touched on this indirectly. Let's take a closer look. Actually, inspections work for us as one of our most valuable training tools. We have seen that inspections help to train our officers but, just as important, they help to train all personnel of a unit.

Applied to the individual, inspections inculcate an element of discipline and develop good soldierly habits of neatness and orderliness. *And they teach the soldier to do correctly those things in which he personally has demonstrated ignorance or improper procedures.*

Training is inherent in the inspection process. It must be remembered that any inspection is a procedure involving three inseparable elements which occur in a definite sequence. The first phase of any inspection involves *detection* of some item, facility or operation that is incorrect or inefficient. Next, the detected discrepancy undergoes a phase of *correction* and is eliminated by explanation or demonstration of the proper procedure. Finally, *follow-up action* is taken at a later date to ascertain that the corrective action is being fully applied and that the discrepancy no longer exists.

Consider the case of a company supply sergeant who is relatively new to his job or has tendency to be careless in his work. Through the detection phase of inspection, errors are discovered in his performance of duty. In the corrective phase he is shown how to do his job properly. Follow-up action assures that the sergeant knows correct procedures and follows them. What has been accomplished, then, is very specific, direct and personal training of that supply sergeant in areas where he has demonstrated ignorance or improper methods. No time or effort has been wasted on things he already knew. The training has been effective and efficient.

Obviously, the training value of inspections decreases if an organization is inspected only a few times each year, or if all inspection activity is concentrated

into one short period of a few weeks' duration.

Another way in which inspections work for us is in the field of management. Every commander must be able to intelligently "manage" his organization. He commands by employing the five principles of management: planning, organization, direction, supervision and control. To employ the principles effectively, he must know the capabilities and the capacity of each subordinate operation or function within his command. He cannot determine these capabilities and this capacity without inspection and evaluation of inspection results. Inspections provide the basis for intelligent use of managerial principles and, through them, for effective command of an organization. "Knowledge of the state of the command"—a well-worn platitude—means much more than knowing the present-for-duty strength.

By continuously evaluating and analyzing results of inspections, by comparing one element of the command with another and by watching the rate of progress from one inspection to another, the commander is able to gain a keen insight into the levels of proficiency. He becomes intimately acquainted with the performance, command attitude and personality of his subordinate officers and key noncommissioned officers. He knows his command.

Through his inspection program, the battalion commander knows that Company A is the best unit to employ as a demonstration unit for an attack problem. He knows the unit will perform well and do a bang-up job for the rest of the battalion. Similarly, he knows that Company B has the best supply room which he intends to use as a model for all other supply rooms in the battalion. When special details come along, he knows that the soldiers assigned to Company D consistently present the best personal appearance and that the commanding officer of Company C has unusual organizing ability.

LT COL WILLIAM M. BOYCE received a reserve commission upon graduation from the University of Connecticut in 1938. His first assignment was as a platoon leader with the 118th Infantry. In World War II, he served in Iceland and with G4, European Theater of Operations. Returning to this country, he was assigned to the G4 Section, War Department General Staff, and was graduated from the Command and General Staff College. His next assignment was as assistant inspector general, Headquarters, First Army. He then went overseas and served with the Japan Logistical Command and as an assistant inspector general, Headquarters, Army Forces Far East. Col Boyce came to Fort Benning in 1954 and was assigned as a battalion commander in the School Brigade, TIS. He assumed his present position as an instructor in the Staff Department last year.

Through his inspections, the commander learns how well each of his subordinate elements can function under a given set of circumstances. He can evaluate their capabilities accurately. Then, and then alone, can he intelligently plan and organize his command for any particular task. When he issues his directives he knows the amount and type of supervision which will prove most effective. Finally, he knows what elements of control he must exercise over the whole operation. He is commanding his unit with finesse and with the professional touch that marks him as a real leader. Compare this, if you will, with the commander who "blindfolds" himself and manages his organization on a "hit and miss" basis. He doles out assignments with no real idea of how well the subordinate element will be able to function and with no clear-cut understanding of the capabilities of his command.

In conclusion, an integrated, continuous type of inspection program at any level of command will work for us in the following ways:

a. It will permit current evaluation of the over-all state of the command.

b. It will increase flexibility within the command.

c. It will reduce the excessive number of similar inspections.

d. It will make substantial contributions to the military education of subordinate officers.

e. It will provide specific, effective and highly efficient training for all personnel.

f. It will permit intelligent implementation of command management.

This, then, is the positive side of the inspection process. Here is how inspections can prove their worth, can work for us and can substantially contribute to the important task of building a more effective army.

BACK ISSUES OF QUARTERLY AVAILABLE

The Book Department has a few back issues of The Infantry School Quarterly which are available for $.50 each on a first-come-first-served basis. Orders for the following issues will be filled as they are received, until the supply is exhausted: April, July 1953; April 1954; April, July, October 1955; and January, April 1956. Write The Book Department, The Infantry School, Ft. Benning, Ga.

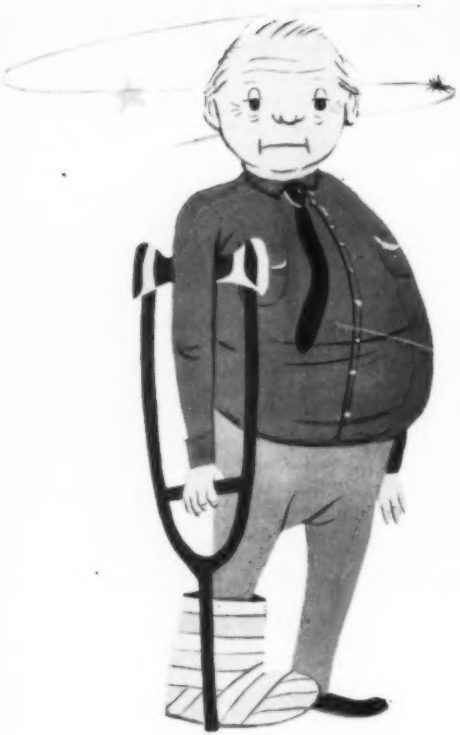
OVERWEIGHT IN GRADE?

"It is a military duty for all officers and men to maintain a high level of physical fitness as a requirement of their profession. An Army man must be physically fit to perform his duties with maximum efficiency, either in peace or in war. He needs to be physically fit so that, by presenting the model of an alert, ready fighting man, he will inspire confidence as a leader in his subordinates and as a guardian of the peace in his fellow citizens."

General Maxwell D. Taylor

My name is Major Pear Shape. Yes, I'm overweight in grade. I am one of those miserable souls who converts all food to a bulge. I just naturally have difficulty keeping in good physical condition. I entered the Army as a private during World War II because no arm or service would commission a 24-year-old with my outsize dimensions. I remember overhearing the physical examiner (as I sat outside the thin partition with other perspiring would-be's), "I understand we have another obese one today. I want to have a look at him." One look was enough. "Lose 45 pounds and your other qualifications for a commission will be considered."

By Maj Albert E. Lockhart



After a couple of years in the field I made it. But I've had to do it all over again a number of times since.

During the last Christmas holidays I attended five cocktail parties and three dinner parties—and gained 15 pounds. Ah! Those tempting, tantalizing hors d'oeuvres; those rich, succulent treats served so proudly by the holiday hostess; those wonderful, oozy desserts—and all of them poison to me. Boy, how I like good food! The richer and spicier the better.

Since the problems of food, exercise and physical fitness have plagued me all my life I feel qualified to pass on a few observations and experiences and even to suggest a regimen for unhappy people like me to whom a fudge sundae is a pound. I do my best to keep in fighting shape at all times but once in a while th old bulge returns. Right now I'm work ing extra hard to comply with the Chie of Staff's recent directive on physical fit ness, a paragraph from which is quote above. As if the directive weren't enough I'm spurred on by the added incentive o having to flatten the old paunch so I ca get final fittings on that dress-blue uni form I ordered two months ago.

I direct my remarks to "the large seg ment of the Army engaged in sedentar duties involving little physical exertion . . ." If you are one of the fortunate built like a wire spring, who merely get a bit rusty during sedentary tours, yo may spring along with me just for fun Maybe I can talk you into getting ou the oil can.

First, let's face facts. Most of us a or past the age of 35 are not going t develop suddenly into long-distanc champions and lead the next Bosto Marathon. But we can develop th strength, wind and endurance to face u to our jobs in combat. May I suggest tha a touch of Walter Mittyism may giv you a happier approach to exercise durin your chairborne tour? Who knows bu that proper conditioning may turn th headquarters' most rotund waddler int its lithest loper?

The king-size Mitty meets all kind of obstacles when he tries to get his ex ercise in compliance with the intermit tent headquarters directive "that all offi cers will devote at least one afternoon a week to physical training . . . to activ participation in athletic pursuits."

Let's examine a typical case—my cas Believe it or not, this actually happene during one of my conditioning periods a while back. It's right after the holida and I'm a real Fatso. I read the directiv and decide that I won't be able to ge into my summer khakis unless I take of 12 pounds. I am able to get Wednesda afternoon off this week. So I go over t

the gym and play a vigorous but rather ridiculous version of that excellent exerciser, handball. What happens? I sprain my ankle. For 10 days I limp around with a sorrowful face and get less exercise than ever. When I recover I try to get cranked up again but things just won't work out. There is a big work load—CONARC wants this, right now! Army headquarters wants that tomorrow. Old Pear Shape finds himself working overtime each night whipping out little gems on the typewriter. I console myself that, after all, I *am* working on my primary duty—and doing a durn good job of it, too! All this pressure! No time for handball these days. And so the seasons pass and each succeeding PT test is more agonizing.

About this time someone concerns himself with the troubles of us fat field grades and convinces the headquarters commander that a scheduled period of physical training at 1630 every day on Zilch Field is the answer. Some of the officers, because of their great efficiency or for other reasons, are able to leave their desks promptly at 1615 daily. For them this is the solution. A daily period of conditioning exercises, an occasional run-through of the PT test and a jog around the field—and they begin to shape up.

But what about old Pear Shape? Yes! I'm left out again. My schedule includes afternoon lectures three times a week, in addition to attending meetings and briefings ordered by the same commander who put out the directive for daily PT.

One day my big boss (once removed) meets me in the hall and, instead of the usual cheery "Good morning, major," he lets fly with "How could you get into a tank? There's a weight limit for jeeps. You couldn't jump—they'd have to push you off the monorail, etc., yatata-yatata." That does it! I grit my teeth and vow that all will be sorry when I'm crowned 100-yard champ in the all-army contests. I'll start right now and be a source of envy by the time the swimming pool opens in June. In a Mitty-like vision I see lean, brown legs and taut arms thrashing and churning through emerald water and there I am, leaping like a dolphin from the pool to the ramp. "Isn't he wonderful?" whispers a beauty. "And he's quite mature, too."

Well, I decide that if the responsibility for physical fitness is mine, I'll have to do it my own way—despite the obstacles placed in my way by irregular schedules, new projects and changing requirements.

And here's my solution: The only time of day I can call my own is the first hour in the morning after the alarm clock sounds. I usually get through the bathroom routine before anybody else in the house arises. So I set the alarm 30 minutes ahead, dress in my athletic togs and trot off to Zilch Field for a run and a workout before breakfast. In addition, I play handball, tennis or golf whenever I get a chance—and enjoy these games more than ever. They have become real sport because I am in shape for them. I seldom miss a morning and look forward to my daily conditioning exercises and jaunt as much as to my meals.

Let me give you a few pointers on how to make this system work.

1. Train alone and on your own schedule. You may like Old Bill and appreciate working with him at the office but chances are 10 to 1 that you won't make a constant team on the physical-training program. He may be in better condition than you. If so, he'll run you into the ground before you're ready to match his speed and distance. Or he may not be able to keep up with you, thereby wasting 10 minutes of your precious half-hour as you wait for him. Seldom will the two of you get up at the same time. One will always lag. One day Bill won't show up. The next day you'll be tempted to stay in bed.

2. Get the appropriate equipment. This puts you even with golfers, tennis players, fishermen and hunters. The gym suit and sneakers will be a physical reminder to you that duty calls. Properly dressed, you will approach training with a businesslike attitude. Your equipment also lets other people know you aren't joking or suddenly going berserk (some people will think you're crazy anyhow). Let them laugh —your turn comes when the semiannual PT test rolls around again.

3. If possible, run cross-country. This toughens the downhill and uphill muscles greatly needed during combat. A golf course, if there is one nearby, us-

ually furnishes varied terrain and pleasant surroundings, without the risk of potholes and other ankle-breakers. However, you'll have to get up earlier than your golfing friends to accomplish this part of your training program. The divot diggers probably won't enjoy your jogging through their threesome—even if you do bellow "Fore."

4. Exercise should be enjoyable: so, enjoy it. Of course, once you're in shape, you'll enjoy your physical-train-

ing program. And you can enjoy your exercises even when you're not actually doing them. Needle your friends by being one up on them. Call attention to sagging middles, walk briskly, skip lightly up stairs, breathe deeply and make a point of never puffing or snorting. Let people know you're in trim. You'll get the biggest kick from the PT test if you run through all the events with a cigar stump firmly locked in your jaws.

*5. **Eat sensibly.*** You know your desirable weight. You can control your weight by cutting calories. Replace starches and sugars with proteins. But don't stuff on anything. Your half-hour run and workout in the morning won't neutralize 6000 calories. Proper diet will do more to keep you slim than hours of exercise. Don't become a faddist in your dieting—talk it over with a doctor. Follow his advice on reducing. Get a good book, learn the calorie counts of different foods and stick to low-calorie dishes. The keys to successful dieting are: consult, study, count. Weigh yourself frequently and enjoy watching the dial drop as you thin down.

*6. **Stick with it.*** Don't be impatient for immediate results. Although you may lose weight and will begin to feel better after a week or two, you may not improve your PT-test score appreciably for several months. As you get in trim, you'll notice gradual improvements with cumulative results. Soon you will be a before-and-after case. One morning the boss's boss will sidle up to you and ask you how you did it. Be courteous but tell him how. Don't spare any of the details. But if you see him on Zilch Field the next morning—ignore him unless he wants to talk. Don't embarrass him.

*7. **Don't overdo it.*** Start off easy! Build yourself up gradually to longer and more strenuous workouts. This is particularly necessary if you are really overweight. Exercise should be moderate during the weight-reduction period. And don't attempt a physical-fitness test until you have had twelve to fifteen periods of vigorous exercise. Remember that a moderate amount of exercise daily is more effective than a once-a-week muscle-knotting session. All you want to do is get in fighting condition and stay that way. Let someone else run the Boston Marathon. You won't get the TDY to enter anyway.

*8. **Consult a doctor.*** If your case is extreme, see your doctor before you overload your heart. Even if you are in good condition talk with the doctor periodically, particularly if you notice any unusual reactions to exercise. His advice on diet and exercise will help you with your custom-made conditioning program.

Good luck, Butterball!

MAJ ALBERT E. LOCKHART writes about but certainly is not the personification of "Major Pear Shape." He admits, though, that he has a tendency to gain weight but has successfully licked the problem. Maj Lockhart enlisted in the Army in 1944 and received an OCS commission a year later. After serving briefly as a tactical officer with the School Brigade, TIS, he was assigned to the 1st Infantry Division in Europe as a platoon leader. Returning to this country, he became a company commander with the 3d Armored Division at Fort Knox and, in 1950, went to Korea where he served as S3, Special Activities Group, X Corps. Major Lockhart returned to this country in 1952 to attend The Infantry School's advanced course and since then has been assigned as an instructor in the Tactical Department.

The Infantry is learning

to use atomic weapons an

to protect itself against th

A PATTERN OF ACTION

By Lt Col George H. Russell and Maj Charles P. Murray

We have no monopoly on the tools of war. The enemy, like ourselves, is continually developing new weapons—weapons with ever-increasing power, range and accuracy. It matters not whether the enemy is the first to produce such weapons or whether we are; our Infantry must find ways of protecting itself against them.

Today, the Infantry must find the means of coping with atomic weapons. We have learned from experience that dispersion helps to reduce casualties. Dispersion has become more and more important throughout the years as weapons have become capable of inflicting ever-greater destruction. In the past we have looked at dispersion primarily from the viewpoint of separating individuals, weapons and vehicles. But this sort of dispersion will not suffice in a nuclear war. No previous weapon has had the destructive power of the atom bomb. It simply is not practical to separate individuals or materiel to the extent required for protection from a nuclear explosion. We must find another solution.

Prior to the threat of atomic weapons, regiments and even larger forces, when not in contact with the enemy, frequently occupied a single assembly area. When the regiment received an offensive mission, its battalions normally moved into forward assembly areas to plan and prepare for the operation. While moving from one assembly area to another or while launching an attack, battalions frequently moved together. During the conduct of the attack they also moved close to one another. They normally massed for the attack prior to crossing the line of departure and remained massed while seizing the objective.

After taking the final objective the en-

tire regiment consolidated the position, to provide maximum strength for any enemy counteraction. Again, there was no particular requirement to separate units.

Atomic weapons, and the possibility of their tactical use, demand that the Infantry think about modifying some of its tactics and developing new techniques.

It has become necessary to consider the dispersion of units. Our best military and civilian minds are working on this problem and exercises are being conducted to test their thinking. At present there seems to be agreement that some protection can be gained by dispersing battalion-size units. The number of atomic weapons available and the importance of the target will of course be a determining factor as to what size unit may be hit with an atomic weapon. The commander must always balance his requirement for concentration against the enemy's atomic capability. When the requirement for protection from atomic explosions outweighs the need for concentration, companies and platoons within the battalion also may be separated. Separation in any case depends on the capability to control and support separated units by fire and maneuver and will largely be influenced by the relative mobility of the opponent. Therefore, it is evident that the degree of protection that can be achieved by dispersion depends upon the adequacy of communications, range of supporting weapons and available means of transportation.

Atomic weapons, the scarcity of troops in relation to land areas involved and the probable numerical superiority of the enemy must result in a more fluid warfare than we have known in the past. In fluid warfare, units not in contact with the enemy must occupy areas well to the rear, covered by screening forces. The amount of dispersion within assembly areas and the distance which units are located to the rear will be determined by the enemy's capability to interfere by fire or ground action and the degree of mobility possessed by our forces.

After an attack mission is received, plans and preparations must be completed without moving units to forward assembly areas as we have known them. This will require planning and reconnaissance over extended distances. Just prior to the attack, battalions must move forward widely separated and remain separated until the last possible moment. They will mass only when necessary to close with and overwhelm the enemy.

Keeping these thoughts in mind, let's see how the attack of a regiment might be planned and conducted. Let's assume that the enemy is occupying positions 1 and 2 (Figure 1) and that our security forces are in contact with enemy security forces in area 3. The regiment's zone of

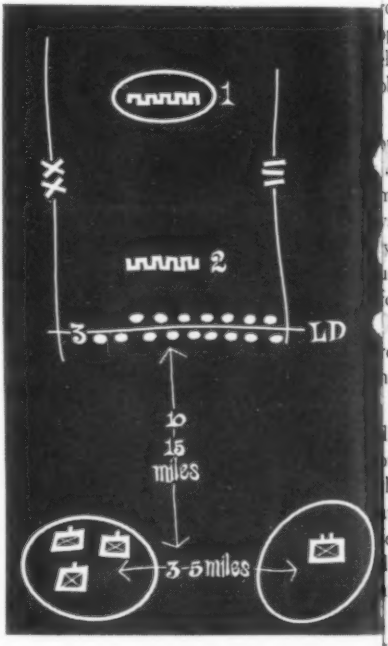


Figure 1.

action was assigned by division. However, in fluid warfare, axes of advance—rather than zones of action—will frequently be assigned to Infantry units. Our regiment is located 10 to 15 miles to the rear of the line of contact. Our battalions are dispersed in assembly areas three to five miles apart and the companies of each battalion are separated by about two miles.

Let's further assume that the division commander has assigned area 1 as the regiment's objective. He has designated a zone of action for the regiment and has delineated this area of responsibility by establishing boundaries. Since the regiment has been assigned a zone of action it must operate within that zone and is responsible for clearing all enemy within it. However, it is not required to sweep the entire zone during the initial attack. It may attack over the most favorable avenue of approach on a relatively narrow front, bypassing enemy not directly opposing the attack. The bypassed enemy elements can be cleared later, after the objective has been seized.

However, it might be well to point out that the separation of units in fluid warfare may cause the division (and regimental) commander to assign axes of advance rather than zones of action. This would permit greater freedom since a unit assigned an axis is not responsible for clearing enemy encountered on the way to its assigned objective, nor is it required later to eliminate enemy which has been bypassed.

To continue with our situation, the division commander has assigned a line of departure to control and coordinate the maneuver and fire-support elements at the beginning of the attack. He has selected the line of contact as the line of departure and specified the time that the attack will begin.

The regimental commander now begins his planning. Speed in planning the

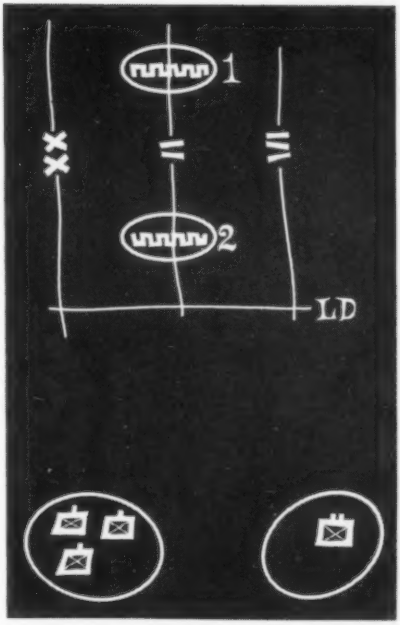


Figure 2.

attack is essential. He must insure maximum use of available time by issuing timely warning orders, based on tentative plans, so that leaders at all echelons can accomplish concurrent planning and reconnaissance. To save additional time he and his assistants use army aircraft for reconnaissance and other movements.

In our situation, the regimental commander decides he must seize position 2 (Figure 2) before he can take the objective assigned by the division commander. So he designates position 2 as an intermediate objective. He estimates that the assault power of two of his battalions, making a coordinated attack, will be required to overcome the enemy on each of the two objectives, 1 and 2. Accordingly, he subdivides each objective into two battalion objectives and establishes a boundary between the battalions.

Now we see that the regimental com-

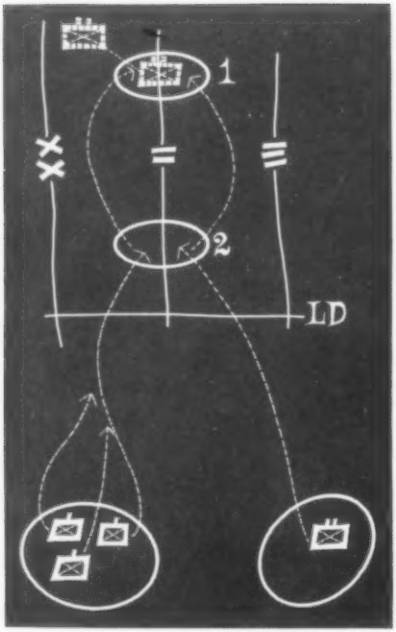


Figure 3.

mander's plan of maneuver has taken shape. He will use two battalions in the attack. He has assigned a zone of action to each of the attacking battalions and objectives for them to seize. He has specified a line of departure and the time that the attack is to begin.

Our commander is aware that the planning and execution of his operation must be based on the proper and continuous integration of fire and maneuver. Therefore, as he developed his plan of maneuver, he considered how available fires could best support his maneuver elements. He planned for the use of all fires available for the operation—his organic weapons, supporting artillery, air and atomic weapons. He knows that the importance of proper planning for and use of fire support has not diminished with the advent of atomic weapons. Conversely, he realizes that the fluid nature of atomic warfare will make the proper use of fire support more essential than ever.

Now let's consider the conduct of this attack. See Figure 3. Based on careful consideration of time and space factors, the attacking battalions move, widely separated, toward the line of departure. They move under cover of darkness (or other period of reduced visibility) to maintain secrecy and to reduce the effects of enemy fires. For our purposes, let's assume that the movement toward the line of departure is by ground transport. However, when the situation permits, helicopters can be used to transport the attacking units to forward areas or to the objective area itself.

The companies, which also have been occupying separated assembly areas, join at specified points along the route of march. Each attacking battalion is now beginning to concentrate as required to overwhelm the enemy on the objective. The movement forward is continuous. Any unnecessary halts or delays must be avoided to reduce the effects of enemy fires. Some protection is, of course, provided by movement itself since the enemy will have difficulty hitting a moving target. Fire-support units go into posi-

Lt Col George H. Russell and Maj Charles P. Murray are highly decorated combat commanders and frequent contributors to The Infantry School Quarterly. Maj Murray was awarded the Medal of Honor while fighting in France with the 3d Division during World War II; Col Russell won the Silver Star and three Oak Leaf Clusters in the Pacific Theater during WW II and in Korea. Col Russell is chairman of the Battalion Committee, Tactical Department. Maj Murray is an instructor in that department.

tion. Attacking companies dismount and move into attack positions close behind the line of departure, and the attack begins. The attacking units close with the enemy under the protection of all available fires. In the assault position, weapons of the attacking elements neutralize the enemy, and heavier fires such as artillery and heavy mortars begin to shift to new targets deeper in the enemy position and to the flanks. The assaulting troops lean into their supporting fires and complete their job of destroying the enemy.

Our battalions, now concentrated to seize the initial objective, must be dispersed as rapidly as possible so the enemy will not be given a suitable atomic target. They move by separated routes to attack and seize the final objective.

The reserve is moved forward behind the attacking battalions as directed by the regimental commander. It can move by ground transport or helicopter. The commander is constantly alert for opportunities to use his reserve, either to exploit enemy weakness developed by the attack echelon or to insure the seizure of an objective.

When this objective has been taken, it is consolidated by the minimum forces necessary—in this situation, one battalion. Pending further orders, the regimental commander moves the other attacking battalion to a location where it will have the desired dispersion.

This is a pattern for attack in the fluid type of warfare that we may see in the future. Units remain separated as long as possible. They concentrate rapidly when necessary to overwhelm the enemy and separate again as quickly as possible when the need for concentration has passed.

Because of this pattern of action, the Infantry must have great mobility to permit it to move rapidly over the distances involved. It must have improved weapons to enable small, mobile units to operate widely separated and against a numerically superior enemy. And it must have better means of communication so the commander can control his units over greater distances.

How would YOU do it?

By LT COL GEORGE H. RUSSELL

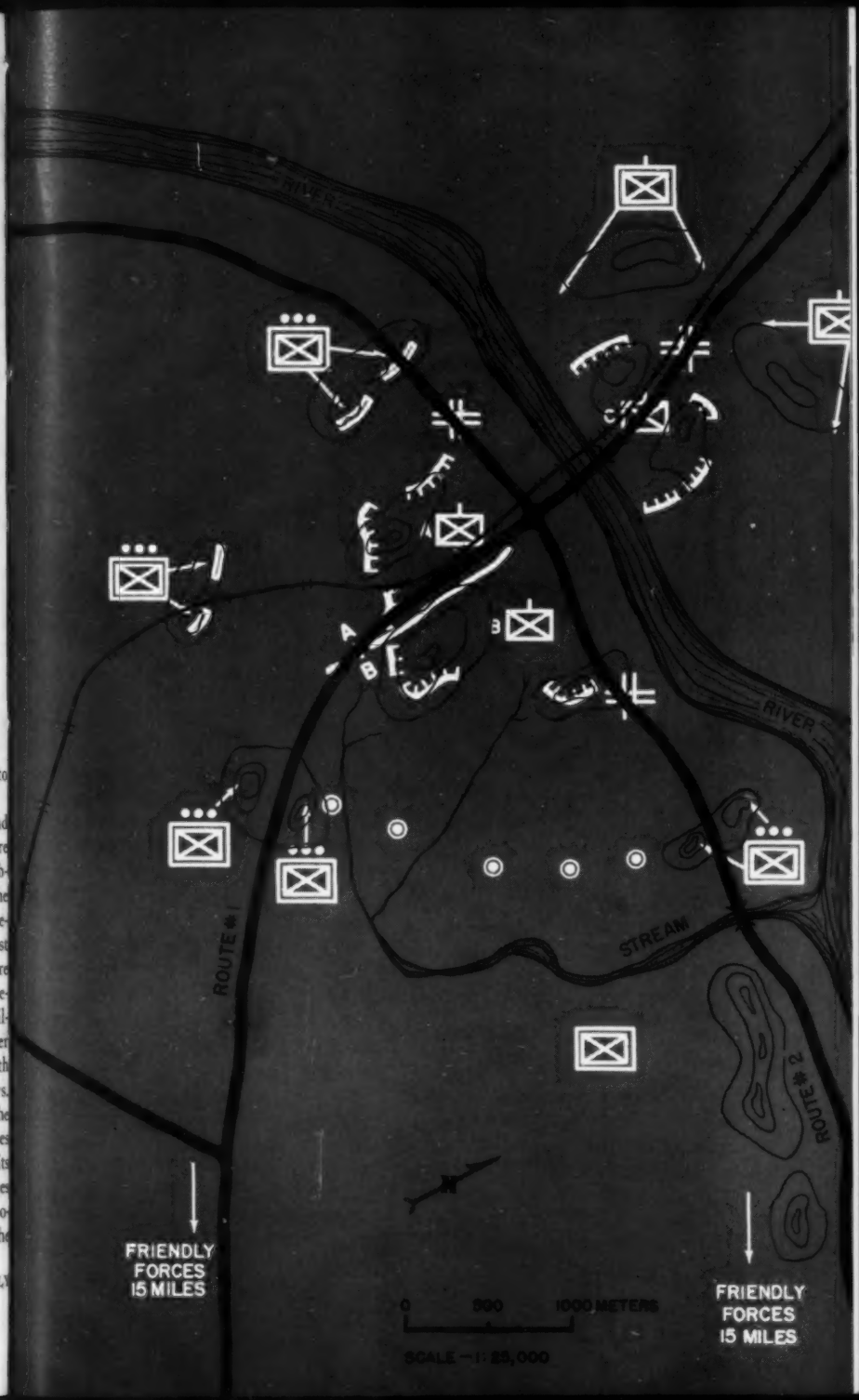
Read the situation, study the map and see if you come up with Lt Col Russell's solution.

Situation

You are commander of the 1st Battalion Combat Team. Fighting has been very fluid and the division of which your team is a part has been attacking north against scattered enemy groups. Your team was ordered to seize and hold the two bridges over the river pending arrival of the rest of the division (Figure 1). Initially, you sent Company C into the area by helicopter; it was successful in destroying the bridge guard and securing the bridges intact. The remainder of your team joined Company C by motor movement. In addition to the 1st Battalion your team consists of the regimental I&R platoon, a platoon of 4.2-inch mortars, two platoons of tanks, a platoon of antiaircraft artillery (AW), a platoon of combat engineers and a battery of 105mm howitzers. You have twenty 2½-ton trucks in addition to TOE vehicles.

The terrain is generally open and level, but the few hills in the area are quite steep. There are few trees and observation is excellent. Streams in the vicinity are not fordable. Tracked vehicles can move cross-country in most of the area but wheeled vehicles are largely restricted to roads because of recent heavy rains. The double-track railroad has a wide, firm roadbed. Weather is expected to be cold and clear with good visibility for the next several days.

Shortly after your team arrived in the objective area, enemy airborne forces attacked your division and stopped its advance. Enemy helicopterborne forces landed in your vicinity and occupied positions to your south, east and west. The


RIVER
RIVER
A
B
B
ROUTE #1
STREAM
ROUTE #2
FRIENDLY FORCES 15 MILES
FRIENDLY FORCES 15 MILES
0
500
1000 METERS
SCALE — 1: 25,000

enemy to the north of Company C came in by ground vehicles, including several tanks. Your team has been surrounded for 12 hours. The enemy has not been particularly aggressive but seems content with repulsing the many reconnaissance patrols you have sent out.

Enemy air forces have been active during the past 24 hours and your units have been hit by four air strikes in the last five hours. Your units have almost a basic load of all types of ammunition. EENT is 1930 hours; BMNT is 0530. At 1300 hours on 25 January you receive the following message from the division commander: "Division mission changed. You will join main body of division by moving generally south over Route #1 or Route #2. Complete link-up not later than 261200 January. Friendly air support will *not* be available. Destroy river bridges."

It is now 251302 January.

Problem

How will you break the encirclement? Your plan must include the following:

1. Time at which operation will start.
2. Route to be followed for link-up.
3. Deception.
4. Initial objective for breakout force.
5. Use of fire support.
6. Elements to execute deception.
7. Elements to make main attack of breakout.
8. Elements to hold position.
9. Reserve.
10. Formation to be adopted after breakout is completed.

Solution

1. You decide to start the operation with a feint at 2000 hours and to launch the main breakout attack at 2100 hours. Factors favoring an early night operation are your greater chance of surprise, the enemy's air superiority and your own lack of air support. All plans can be prepared and orders issued before nightfall to permit immediate execution just after dark.

2. You decide to follow the route along the double-track railroad and get back on Route #1 sometime after the breakout. You choose to follow the railroad initially because:

a. The enemy probably expects you to take one of the roads since you have a number of vehicles.

b. Route #1 is blocked by a much stronger force.

c. Route #2 provides the enemy with too many opportunities to block your advance at the stream and in the defile formed by the hills paralleling the road and the river.

d. Although the railroad will be bumpy, the vehicles will be able to move rapidly.

3. For deception you decide to make a feint with part of your force at 2000 hours along Route #2. The objective of the feint will be the enemy hill position astride Route #2 just west of the junction of the stream and the river. During daylight hours you will make a demonstration by visibly shifting some of your elements and weapons to positions which would logically support a main attack down Route #2. The hour between the feint and the actual breakout will give the enemy time to shift some of his forces to meet the feint and improve the chances for success of the main attack. Fires also will be used, as mentioned below, to improve the deception.

4. As the initial objective for the breakout force you select the high ground on both sides of the railroad cut held by an enemy platoon. Control of this terrain feature will permit your battalion team to pass through the cut and move rapidly along the flat ground to the south. The breakout force also will protect the rear and flanks of the entire team by holding this objective.

5. You decide to use your supporting fires first to support the attack and eventual withdrawal of the feint; second to neutralize the enemy on the high ground astride Route #1; and third to support the main attack when it is discovered. Firing data must be computed carefully during daylight to insure night accuracy. Fires initially supporting the feint, followed by fires on the enemy astride Route #1, will tend to make the enemy think the main attack is on Route #1 once the feint has failed to materialize as the main attack.

6. Company B is in the best position to plan and execute a feint along Route #2. A platoon of Company B with a section of the AAA(AW) will make the feint. The AAA(AW) section and several of the tanks may be shifted down to Company B's area just before dark to give credence to an apparent main attack.

7. The main attack for the breakout will be made by Company A because it is in the best position to accomplish this mission. The attack will be attempted by stealth but will be supported by all available fires when discovered. A P&A squad will be attached to Company A to clear obstacles that may be encountered.

8. Company B will hold the present defensive positions south of the river while the breakout attack is being made and will form the rear guard until it passes through Company A.

9. Company C will be the team reserve initially. It will begin to move south of the river immediately after dark and will leave rear elements to deceive the enemy until you order them to withdraw. The engineer platoon will be attached to Company C and will destroy the river bridges immediately after withdrawal of the rear elements of Company C. Company C will pass through Company A after seizure of the initial objective and form the advance guard for the battalion team's move to the south.

10. Once you break out, you plan to move as rapidly as possible with vehicles in the following formation:

a. I&R Platoon under your control.

b. Company C with one platoon of tanks attached (advance guard).

c. 81mm mortar platoon.

d. Company B (minus a reinforced platoon to protect withdrawal of the 4.2-inch mortars and artillery).

e. Battalion headquarters company (-) and medical elements.

f. 4.2-inch mortar platoon.

g. 105mm howitzer battery.

h. Company A with one platoon of tanks and the reinforced platoon of Company B attached will form the rear guard.

i. Your command group will move with Company C. The engineer platoon will remain attached to Company C. The battalion antitank platoon and the AAA(AW) platoon will move by section, dispersed in the battalion-team column to provide AT and AA protection under your control. The advance-guard company and Company B will put out flank protection on your direction as the road net permits.

Summary

Deception will play a major part in successful breakouts since we must take the initiative from the enemy. The main attack must strike quickly and hard to rupture the enemy's positions and permit the remainder of the force to move through the gap. The reserve must be prepared immediately to pass through the gap and to begin rapid movement. The force holding the defensive position must be the minimum necessary. Above all, each leader must know the plan; this will permit the force commander to adjust rapidly to unforeseen circumstances.

Operations of this type will be common in the mobile warfare of the future. Think about them now.

CHECKLISTS FOR INFANTRY LEADERS

These are the second in a series of checklists prepared by The Infantry School for company commanders, platoon leaders and squad leaders. The first series, on the attack, appeared in the April issue of the Quarterly. When completed the entire series will be published in a Department of the Army pamphlet. These checklists are not inflexible rules but guides that should be modified to fit the situation. Do not let them become substitutes for thinking! Checklists must not be a "crutch." Use them to check your thinking and free your mind for other considerations.—Editor.

Company Commander

1. Upon receipt of the battalion warning order—
   a. Disseminates applicable portions of the warning order to his subordinates.
   b. Determines what personnel will accompany him when he goes to receive the battalion order.
   c. Initiates as many preparations for the defense as possible based on the information contained in the warning order.
2. Upon receipt of the battalion defense order —
   a. Coordinates as much as possible with the adjacent and supporting commanders who were present for the battalion order.
   b. Arranges for the attached- and supporting-weapons representatives who were not present for the battalion order to join his unit.
   c. Arranges for final coordination with adjacent-unit commanders and the commander of the force in contact.
   d. Plans the use of available time.

e. Makes an estimate of the situation.
f. Makes a preliminary plan of defense including the —
(1) Location of platoon defense areas.
(2) Location of company local security.
(3) Employment of the 60mm mortars and 57mm recoilless rifles.
g. Tells subordinates where, when and to whom the defense order will be issued.
h. Plans his reconnaissance. (He may assign reconnaissance responsibilities to subordinates if time is limited.)
i. Informs executive officer of the unit's movement to the defense position.

3. While on reconnaissance—
a. Studies the immediate foreground of the position to determine—
(1) Areas which give the enemy covered or concealed approaches to the position.
(2) Natural obstacles and exposed terrain over which the enemy must pass.
(3) Critical terrain features which may be occupied as hostile observation posts.
(4) Areas within the defensive position which are exposed to hostile observation.
b. Studies the ground within the defensive area in detail looking for—
(1) Defense areas for rifle platoons.
(2) 57mm-recoilless-rifle and 60mm-mortar position areas.
(3) Routes of communication, supply and evacuation.
(4) Company observation-post and command-post locations.
c. Coordinates with adjacent units and

with commanders of the supporting weapons that are to be placed within the company area.

d. Makes a reconnaissance using one or a combination of the following methods:
   (1) On the ground. (Wherever possible.)
   (2) From a vantage point overlooking the area.
   (3) From a map. (As a last resort only.)

4. Upon completion of his reconnaissance—
   a. Receives recommendations from leaders of organic, attached or supporting units.
   b. Completes his estimate of the situation.
   c. Completes his plan of defense including the—
      (1) Location of the front-line platoons.
      (2) Location of the reserve platoon.
      (3) Employment of the weapons platoon.
      (4) Provisions for local security.
      (5) Night dispositions to meet conditions of reduced visibility.
      (6) Communications system.
      (7) Passive security measures.
   d. Completes the company fire-support plan including the—
      (1) Position areas, barrages and concentrations for the 60mm mortars.
      (2) Position areas, principal directions of fire and sectors of fire for the 57mm recoilless rifles.
      (3) Position areas, final protective lines and sectors of fire for the light machineguns.
      (4) Location of observation posts.
      (5) Emergency signals for final protective fires.
      (6) Plans for counterattack.
   e. Prepares the notes necessary for the issuance of the order.

5. Upon completion of his plan—
   a. Proceeds to a location previously designated for issuing the order.
   b. Presents a terrain orientation to the personnel directed to receive the order.
   c. Issues the five-paragraph order, usually orally.
   d. Answers questions and insures that the order is clearly understood.

6. Upon issuance of the order—
   a. Maintains constant supervision of his organic and attached units during the detailed organization of the company defense area.
   b. Insures that final preparations for the defense incorporate the company defensive plan.

7. During the conduct of the defense—
   a. Positions himself in his observation post or, when necessary for control and personal supervision, moves to the zone of action where operations are most vital to the success of the defense.
   b. Keeps the battalion commander informed of the situation at all times.
   c. Insures that weapons within the battle position open fire according to plan.
   d. Insures that requests for supporting fires are made to observers from the artillery, heavy mortar company or heavy weapons company.
   e. Insures that troops and weapons are redistributed if the company is threatened from the flanks or rear.
   f. Insures that fires from adjacent and reserve-platoon defense areas and from supporting weapons engage the enemy if a portion of the company defense area is overrun.
   g. Determines the advisability of a counterattack if the enemy makes a minor penetration.
   h. Orders the counterattack upon approval by the battalion commander.

Platoon Leader

1. Upon receipt of company commander's warning order—
   a. Issues a warning order to subordinates.
   b. Selects specific personnel to accompany him to hear the company defense order.
2. Upon receipt of company defense order—
   a. Plans the use of available time to insure that sufficient time remains for the organization of the platoon defensive position.
   b. Begins an estimate of the situation to insure the proper analysis of the terrain and available information of the enemy.
   c. Makes a preliminary plan.
   d. Arranges for moving the platoon, reconnoitering assigned areas, issuing the order and coordinating.
   e. Makes a thorough reconnaissance of the assigned area and completes his coordination with adjacent units and supporting weapons.
   f. Completes the plan for the defense of the area assigned.
3. In preparing the platoon for the defense—
   a. Orients the squad leaders on the terrain.
   b. Issues the platoon defense order which includes—
      (1) Information of the enemy and friendly forces.
      (2) Attachments and detachments.
      (3) Mission of the platoon.
      (4) Tasks for each squad, team and attached unit.
      (5) Administrative and logistical matters.
      (6) Command and signal matters.
   c. Assigns squads overlapping sectors of fire to insure mutual support within the platoon and with adjacent units.
   d. Designates the general locations for specific automatic rifles and their principal directions of fire so that dangerous approaches into the platoon area and gaps in the final protective lines are covered.
   e. Selects the general locations for primary, alternate and supplementary positions for the organic light machineguns and 3.5-inch rocket launcher.
   f. Plans to have the final protective lines of the light machineguns tie in with the battalion preliminary fire plan and sectors of fire to insure maximum coverage of the platoon area.
   g. Places the 3.5-inch rocket launcher so that it covers dangerous tank approaches thus providing close-in antitank protection for the platoon. Coordinates with other antitank weapons in the area.
   h. Assigns specific duties to platoon command-group personnel to assist in the organization of the position.
   i. Selects squad supplementary positions to insure all-around defense of the assigned area.
   j. Provides security for nonorganic crew-served weapons located within the platoon area and insures that rifle-squad leaders coordinate with them.

k. Provides local security for the company according to the company commander's security plan.
l. Insures that security is maintained within the platoon area by constant observation to the front and flanks and by keeping a percentage of personnel alert at all times.
m. Establishes the priority of work to be accomplished in the organization of the ground.
n. Establishes a CP-OP with communications where the major portion of the platoon front can be observed and the fires of the platoon controlled.
o. Insures that all subordinate leaders understand the details of the order.

4. When supervising the preparations for the defense—
a. Insures, by questioning members of the platoon, that squad orders are properly issued and understood.
b. Insures that all sectors of fire overlap and that no gaps exist in the integrated platoon fires.
c. Checks the work being done to organize the ground and makes sure that camouflage of the position is maintained.
d. Insures that all platoon members know the challenge and password.
e. Insures that coordination with nonorganic weapons in the area has been completed.
f. Insures that security is maintained within platoon area.
g. Checks range cards prepared by the rifle- and weapons-squad leaders.
h. Prepares and forwards the platoon fire plan to the company commander.
i. Maintains communications with company headquarters.
j. Checks the squad defensive areas to insure that defensive positions are constructed properly.
k. Utilizes subordinate leaders to supervise the organization of the ground and the stockpiling of ammunition.

5. In the conduct of the defense—
a. Notifies the company commander of enemy activity observed.
b. Gives timely warning of the approach of the enemy.
c. Calls for and adjusts supporting fires on the enemy.
d. Maintains fire discipline.
e. Directs the fires of the platoon through the squad leaders.
f. Calls for final protective fires when needed.
g. Adjusts the platoon's defenses to meet threats from new directions.
h. Keeps the company commander advised of the situation at all times.
i. Keeps subordinate leaders informed of the situation and makes sure that members of the platoon also are informed.
j. Checks on necessary reorganization, casualties and ammunition resupply and notifies the company commander of the platoon's combat effectiveness.

Squad Leader

1. After receiving the platoon defense order—
a. Begins his troop-leading steps.

b. Makes a thorough reconnaissance of the assigned squad area.
c. Coordinates with adjacent squad leaders and supporting crew-served-weapons leaders within his area.

2. To prepare the squad for the defense—
a. Orients squad members on the terrain.
b. Issues the squad defense order which includes—
(1) Information of the enemy and friendly forces.
(2) Attachments and detachments.
(3) Mission of the squad.
(4) Tasks for each member of the squad.
(5) Administrative and logistical matters.
(6) Command and signal matters.
c. Assigns each member of the squad an exact location on the ground and overlapping sectors of fire.
d. Assigns a principal direction of fire to those automatic rifles that did not receive a previous assignment from the platoon leader, making certain that they cover dangerous approaches into the squad area.
e. Insures that automatic-rifle sectors of fire cover the major portion of squad area.
f. Directs each rifleman to lie on the ground and to verify his sector of fire.
g. Assigns sectors of fire to ammunition bearers of crew-served weapons within the squad area and makes sure that these sectors of fire join in with the fires of the rifle squad.
h. Makes plans to fill these sectors of fire if the ammunition bearers are absent or become casualties.
i. Places the squad sniper in a location to get good observation and fields of fire.
j. Places the rifle grenadier within the squad area where he can use his rifle grenades effectively.
k. Assigns specific locations and duties to the assistant squad leader so that he may help control the squad.
l. Provides security for nonorganic crew-served weapons in the squad area.
m. Designates certain members of the squad as sentinels and posts them to observe to the flanks and front, thus gaining a measure of security during the organization of the ground.
n. Directs the organization of the position according to the priorities established in the platoon order.
o. Plans to locate himself where he can observe the major portion of his squad area and maintain control.

3. Supervises the preparations for the defense by—
a. Insuring that all members of the squad understand the details of the order.
b. Insuring that all sectors of fire overlap and that no gaps exist in the integrated fire plan. This includes fires of ammunition bearers on the crew-served weapons in the squad area.
c. Checking the work being done on the ground to insure that camouflage discipline is maintained and that the position is being improved continuously.
d. Checking for effectiveness and coordination the work being done on foxholes and clearing fields of fire.
e. Insuring that all members of the squad know the challenge and password.
f. Supervising the preparation of range cards for all positions.
g. Forwarding the completed squad plan to the platoon leader.
h. Insuring that communications with the platoon leader are maintained.
i. Insuring that ammunition is clean, distributed and stockpiled on the position.

4. In the conduct of the defense—
   a. Notifies the platoon leader of any enemy activity observed.
   b. Gives timely warning of the approach of the enemy.
   c. Requests supporting fires on observed enemy positions.
   d. Maintains fire discipline based on the platoon leader's orders.
   e. Directs the fires of his squad on the approaching enemy.
   f. Joins the final protective fires on orders from the platoon leader.
   g. Keeps the platoon leader informed of the situation.
   h. Keeps subordinates informed of the situation.
   i. Checks on casualties and ammunition supplies and notifies the platoon leader when there is any change in the squad's effectiveness.

CHAIRBORNE?

Many officers are unable to keep up with developments in their basic branch while performing duties having little connection with that branch. An officer completing a staff assignment in the Pentagon or any large headquarters where he has been away from troops often experiences a feeling of apprehension when he suddenly finds himself ordered to troop duty. He wonders what was happened in his branch while he was writing staff studies.

Fortunately, The Infantry School has a solution for such Infantry officers — a two-week refresher course designed to review new developments. The course discusses changes in weapons, tactics, atomic warfare and methods of training and instruction. It is broken down as follows: weapons, 11 hours; tactics, 28 hours; communications, 6 hours; automotive, 4 hours; airborne-army aviation, 2 hours; staff, 17 hours; Ranger orientation, 1 hour. Nuclear considerations are included in all appropriate instruction. Students have time to visit instructional departments for more detailed information on subjects of particular interest. Since it is assumed that an officer attending this course has some military experience, little time is spent on basic subjects.

Any officer slated for troop duty can profit from the refresher course. However, the course is designed not only for the active-duty officer but also for the Reserve or National Guard officer. Prerequisites have been broadened to permit attendance by as many officers as possible.

To qualify, a student must: be a commissioned officer in the grade of captain or above; be a member of the active Army, or a reserve component officer who requires refresher training (Reserve and National Guard officers are ordered to active duty for two weeks to attend the course); have credit for an Infantry company-officer or regular or associate advanced course, or be in the grade of colonel (the school or rank prerequisite will be waived for active-duty reserve officers recently assigned to Infantry units or to units converted to Infantry); have security clearance for confidential.

Interested officers should apply to the headquarters to which they are assigned. Applications will be forwarded to the appropriate army headquarters.

Students report on a Sunday and start training the next day. Since seven refresher classes are projected for FY '57, officers who need such training should be able to attend a class to fit their situation.

QUIZ

Answer the following questions to determine whether you are a bolo, recruit, marksman, sharpshooter or expert. Each question is worth 10 points.

1. What requirements must be met before a person, regardless of rank, may be given access to classified information?
2. Company, battalion and regimental commanders have command responsibility for government property within their commands. Generally this requires each commander to insure that property of his command, both serviceable and otherwise, is properly safeguarded, administered and accounted for. What five specific requirements does command responsibility for government property entail?
3. When and how does *information* become *intelligence*?
4. To interest soldiers in the subject you are teaching, you should (select one):
   a. Appeal to the men who have the highest ideals of duty to their country.
   b. Show the soldiers why they have a personal need for learning the subject.
   c. Start with the known and progress to the unknown.
   d. Appeal to the smartest men who want to learn all they can.
5. Into what four types do airborne operations generally fall?
6. During the attack, the battalion reserve moves (select one):
   a. On the initiative of the reserve commander, maintaining a prescribed distance from the head of the reserve to the rear of the attack echelon.
   b. On the initiative of the reserve commander to successive positions selected by the reserve commander.
   c. At a fixed distance from the attack echelon which is as close to it as possible without coming under fires directed at the attack echelon.
   d. On order of the battalion commander to successive reserve positions prescribed by the battalion commander.
7. What are the purposes of retrograde movements?
8. When conducting a reconnaissance of an enemy position what

information should you attempt to ascertain?

9. What are the two most important considerations when choosing a site for the operation of an FM radio?
10. Driving on hard-surfaced roads with front-wheel drive engaged will (select one):
    a. Increase tire wear considerably.
    b. Shorten the life of the transfer case.
    c. Cause excessive gasoline consumption.
    d. Overload the engine.

Answers to . . . QUIZ

Possible score 100 points, Expert 90-100, Sharpshooter 70-80, Marksman 50-60, Recruit 30-40 and Bolo 0-20. For complete detailed discussion of the answers check the references listed below.

1. No person is entitled to knowledge or possession of classified defense information solely by virtue of his rank, office, position or security clearance. Such matter will be entrusted only to individuals whose official duties require knowledge or possession and who have been properly cleared. Responsibility for determining whether a person's official duties require that he have access to any item of classified defense information rests upon each individual who has possession, knowledge or command control of the information involved and not upon the prospective recipient. These principles are equally applicable if the prospective recipient is an organizational entity, including commands, other Federal agencies or a foreign government. (Par. 40a, Section IV, AR 380-5, December 1954.)

2. Command responsibility for government property entails the following specific requirements:

a. Commanding officers must assure that the required property is on hand, that it is in serviceable condition and that it is properly cared for and used.

b. There should be no accumulations of property beyond authorized levels or allowances.

c. Supply and supply accounting should be properly administered. (Par. 7, AR 735-5, December 1954.)

d. The practice of conservation of material by all personnel within the command should be rigidly enforced and supervised to insure maximum results in supply economy.

e. All items of equipment, which commanders recommend for turn-in as excess to the requirements of the current mission of the company or battalion, should be reported through channels to the major commander concerned. (Par. 5, SR 735-30-1, August 1954.)

3. After information has been collected and delivered it must be processed into intelligence. Information is converted into intelligence by recording, evaluation and interpretation. Recording is subordinate to, and must not hamper, evaluation and interpretation. Recording is the least critical component of processing. Evaluation and interpretation are the decisive

actions that transform information into combat intelligence. The intelligence officer is assisted in evaluation and interpretation by the organic intelligence section, by attached specialist teams and by other members of the staff. (Par. 21, Chapter 3, FM 30-5, February 1951.)

4. b. It cannot be assumed that men will recognize the importance of learning the lessons presented in a training program. Many important things may seem unrelated to the work of the soldier when he first hears them. Instruction must include valid reasons for learning and an explanation of how things taught will be used. (Par. 7a, FM 21-6, May 1954.)

5. While airborne operations may possess characteristics of more than one of the types, they may be expected to fall generally into one of the following types:

a. *Early Link-up.* This operation is conceived as a delivery of airborne units into an area in the rear or to the flanks of enemy positions. After seizure of the initial objectives, a planned, early surface link-up is effected between the airborne units and other friendly forces. Because of the anticipated early link-up, no substantial build-up of troops, supplies and equipment is planned, other than those delivered in the assault echelon and follow-up. In unusual cases, the delivery of airborne units might be to the rear or flanks of partially or completely surrounded friendly units in order to relieve or lessen the enemy pressure.

b. *Independent Operation.* This operation is conceived as being executed in hostile territory and involves the seizure of an airhead from which further ground, air or naval operations may be launched. Forces involved will be independent of surface logistical support for an extended period of time.

c. *Raid.* This operation is conceived as the delivery of airborne units into hostile territory for the purpose of destroying or neutralizing enemy forces, installations, facilities, headquarters or personalities. A planned withdrawal is executed on completion of assigned mission.

d. *Special Operation.* This category includes all those operations not properly encompassed by the independent, early link-up or raid types of operations. Examples of the special-type operation are show-of-force, assistance to partisans and guerilla forces and all operations primarily political in nature. (Par. 3, Chapter 1, FM 57-30, January 1952.)

6. d. The reserve moves only on the orders of the battalion commander, except in emergencies so grave that they justify immediate movement on the initiative of the reserve commander. As the attack progresses, the reserve is moved to successive positions within reinforcing distance of the assault echelon. The battalion commander issues timely orders for its advance to successive assembly areas. (Par. 196a, FM 7-20, March 1950.)

7. Retrograde movements are made to accomplish one or more of the following:

a. To disengage from battle.

b. To avoid battle in a disadvantageous situation.

c. To draw the enemy into a situation unfavorable to him.

d. To gain time without fighting a decisive engagement.

e. To conform to the movement of other troops.

f. To permit the use of a portion of the command elsewhere. (Par. 325, FM 7-40, January 1950.)

8. A good way to remember how and what to report about the enemy is to use the word SALUTE—

Size.

Activity and Armament.

Location and Disposition.

Unit Identification.

Time you saw him.

Equipment. (Par. 137, FM 21-75, October 1950.)

9. The most important considerations when choosing a site for the operation of an FM radio are:

a. Choose a site that is free from obstructions. Avoid a site surrounded by many trees, or where there are overhead bridges or high-tension lines. Locating the equipment directly under a tree or close to a building may result in unsatisfactory operation because of absorption of the signal. Flat terrain is good. As a general rule transmission over water is better than over land.

b. Locate the equipment on high or level ground. Because of the low power and high frequency used, the location of the equipment affects its operating range. Normally, a line-of-sight range can be expected. That is, if the other station can be seen, satisfactory operation is probable. However, an intervening hill or tall building may hamper or prevent contact with the other station. Valleys, depressions, densely wooded areas and low places are poor sites. Location on a hilltop or tower increases the line-of-sight distance, thereby increasing the range. (Par. 13a, TM 11-612 to 31R2-2PRC-101, December 1954.)

10. a. Driving with the front axle engaged increases tire wear. Front axles should be disengaged except when extra traction is required in mud, ice, snow, sand, very steep grades, fording or similar circumstances where the rear wheels might slip. (On a few vehicles the front axles cannot be disengaged.) (Par. 34, TM 9-1870-1, February 1955.)

ELEMENTARY

DEAR WATSON!

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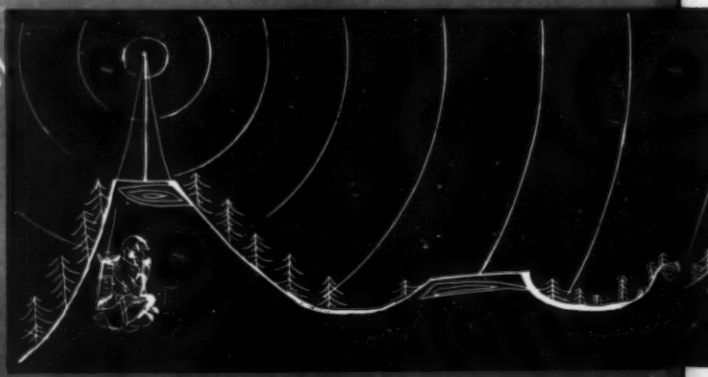
The range of Infantry radios can be increased by the use of simp field-expedient antennas.

By Maj Richard H. Ward



Longer Range for Infantry Radios

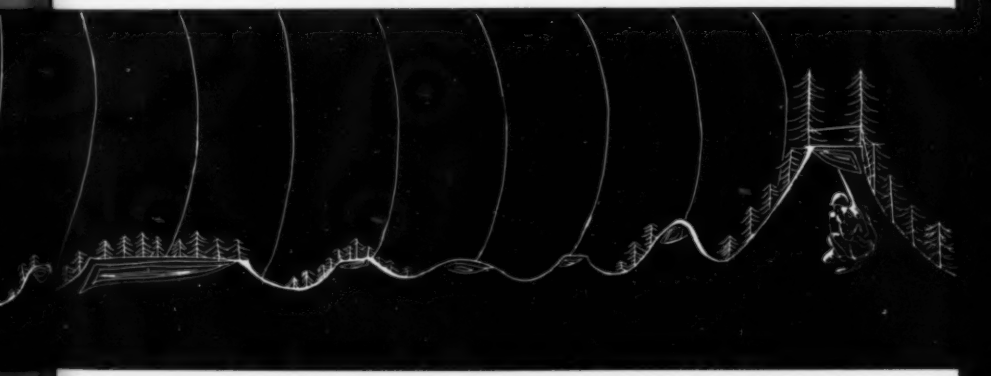
Present concepts of atomic warfare call for a greater dispersion of units to reduce losses from atomic bursts. This dispersion will create a problem for the commander and his communicators. How can they maintain radio contact over distances greater than the operating ranges of our present frequency-modulated sets? We cannot just wait and hope for a sudden influx of new and improved radios. We must solve the problem through a better understanding of the equipment now available.

"What's wrong with this confound radio?" Familiar words to any communications officer. Words he dreads to hear because he knows that in all probability there is nothing wrong with that "confound radio." Commanders are human beings and, like all human beings, they are inclined to blame their own shortcomings on some mechanical device. Our communications officer finds this to be true in many cases. But, being a tactful individual, he replaces the commander's radio and suggests that he choose a better site for operation.

With a better understanding of our radios, we can avoid some of these situations. This article deals with Infantry radio equipment. It shows what you can expect from that equipment and what you can do to get the most from it. This is not a technical article. It deals with the common-sense application of a few principles—so please keep reading.

To improve the performance of our radios we must consider basic characteristics—range, power, frequency, polarization—and their effects on our sets.

Let's discuss range. All of us know that our radio sets are said to have an operating range. For example, the company set (AN/PRC 6) is said to have a



range of 1½ miles. The battalion set (AN/PRC 10) has a range of 3 or 5 miles, depending on whether we use the short or long antenna, while the regimental radio (AN/GRC 7) can be used at a range of about 10 miles. Does this mean that these sets will always provide these exact ranges? Certainly not. These are average figures for average conditions. There are factors which will greatly reduce or extend these ranges.

Among these factors are operating frequency and terrain. A set operating at more than 30 megacycles (Infantry sets operate from 38 to 58 megacycles) will not transmit over an intervening hill mass regardless of range. This is true because, above 30 megacycles, radio waves assume some of the characteristics of light and light will not pass through a mountain.

So far we have learned one principle. Infantry radio sets have a line-of-sight characteristic. Common-sense application of this principle dictates that we locate our sets on high ground. The higher the radio set, the greater its range.

Now let's turn to power. Many times the question is asked, "Why don't they give us more powerful sets?" The joker here is size and weight. To double the range of a radio set its power must be increased by a factor of 16. This extra power requires heavy-duty components which cause the set's size and weight to soar. A more practical solution to the problem of increasing power lies in more efficient use of the limited power available to us.

This can best be done by improved antennas. To point out how much can be accomplished in this respect, a special antenna was built and connected to a standard AN/PRC 10 (rated range 5 miles). Using this antenna, the set communicated with a similar set over a distance of 25 miles. The exchanged signals were "loud and clear." It should be pointed out that the antenna installation immobilized the set for the 15 minutes necessary to install it. More on this subject later.

There we have principle number two. Greater range can be obtained by using specially designed antennas. Combine the two principles we have learned and we readily see that, where additional range is required, we can achieve it by locating specially designed antennas on high ground.

Why is it so difficult to communicate in the jungle and in heavily built-up areas? Here the answer lies in the fact that vegetation and the steel in buildings absorb a radio set's radiated energy. The two principles we have learned in previous paragraphs help solve this problem for us. Elevate the set, or at least the antenna, to a point above the trees or buildings. We can then use remote-control equipment (AN/GRA 6) to operate the set from the ground.

Now, we should take a brief look at antennas. First, think of your television set. You know that if you live a long way from a TV station you need an outside antenna that looks like an engineer's nightmare. Well, the special antennas we're going to discuss are far less complicated, but they do a similar job.

We hear the words frequency and wave length used in many ways. Let's see what they are. Throw a stone into a pool of water and a series of waves will radiate in concentric circles from the point at which the stone strikes. These waves have crests and hollows. If we were to measure from the crest of one wave to the crest of another, we would find that the wave had a specific length: hence, wave length. Now, if we stand at the shoreline we would find that the waves arrive at a rate of perhaps 20 a minute. In other words, at a frequency of 20 a minute.

Radio waves have exactly the same properties as these water waves. They have crests and hollows (wave lengths) and their crests arrive at a receiving antenna with a certain frequency. If we add a third factor, speed, we have the three factors needed to form this variable equation: wave length is equal to velocity (speed) divided by frequency. To put it into a mathematical formula: wave length = velocity ÷ frequency. For radio waves, the velocity is constant and can be expressed by the factor 468.

For technical reasons not necessary to explain here we use half wave lengths to determine the best length for our antenna. This enables us to simplify our formula to: half wave length (in feet) = 468 ÷ frequency (in megacycles).

One final piece of information and we're through with theory. To operate at maximum efficiency the length of an antenna must be exactly a half wave length or multiples of half wave lengths. That is, it can be a half-wave-length long, one-wave-length long, one-and-a-half wave lengths, two wave lengths and so on. Again, there are technical reasons for this but we don't have to know them.

Well, what does all this mean in relation to antennas? Simply that if we know the frequency at which we are operating, we can determine the exact

length of the antenna we need to operate with increased efficiency. Suppose we have been assigned an operating frequency of 46.8 megacycles. By using the formula: half wave length = 468 ÷ 46.8 or 10. Thus, we see that a half wave length for 46.8 megacycles is 10 feet. With this information we can build ourselves an antenna using field telephone wire WD-1/TT (or any other electrical wire or conductor on hand). We know that antennas should be placed as high as possible, so we string a 10-foot length of wire between the tops of two tall trees and connect it to the antenna terminal of our set. Result: increased range.

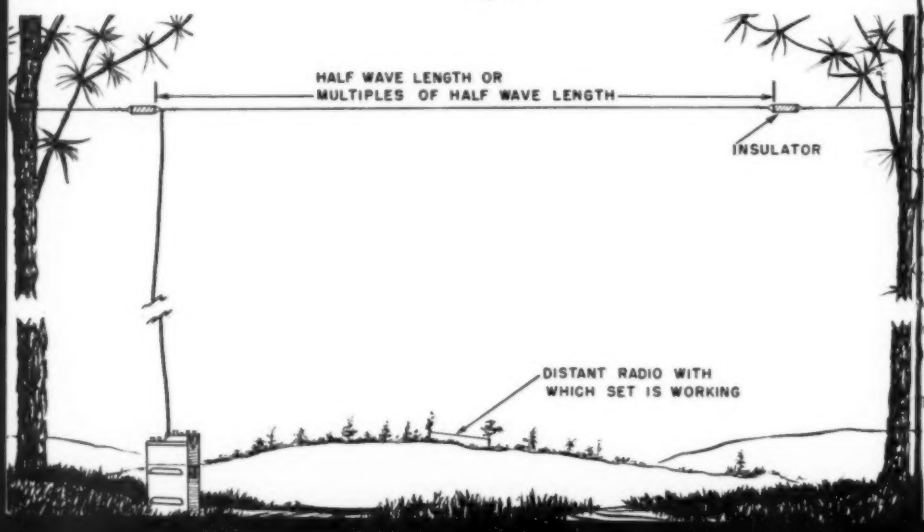
Of course, this tree-top wire could be 20 feet long (one wave length), 30 feet long (one-and-a-half wave lengths) or 40 feet long (two wave lengths), etc. Lengthening of the antenna by half wave lengths provides increasingly greater range. However, when the length of the antenna wire exceeds three wave lengths (60 feet in this example), it must be oriented (aimed) directly at the distant radio with which it is working before it will operate properly. In other words, it is a directional antenna.

If we go into the subject a little deeper, we find that we can build many types of antennas using these principles. Let's look at several.

The simplest application of the half-wave-length and put-the-antenna-as-high-as-possible principles is the field-expedient antenna shown in Figure 1. String a half wave length of wire (or any multiple of a half wave length) between two insulators (any nonporous, nonconducting material—for example, two pieces of broken bottle might be used) attached to trees as shown in the sketch. Be sure the wire is up high and is perpendicular to the direction of the distant radio. Bring the free end of the wire down through the insulator and connect it to the antenna terminal of your radio, keeping this length of wire as nearly vertical as possible. You have increased the set's range. The range will continue to increase, without the antenna's becoming too directional, each time you lengthen this antenna by the appropriate half wave length for your operating frequency—until you reach three wave lengths. After that you have a directional antenna which requires more careful orientation than simply placing the wire perpendicular to the direction of your transmission.

The three directional antennas described below gain increased range because they concentrate and beam the

Figure 1.



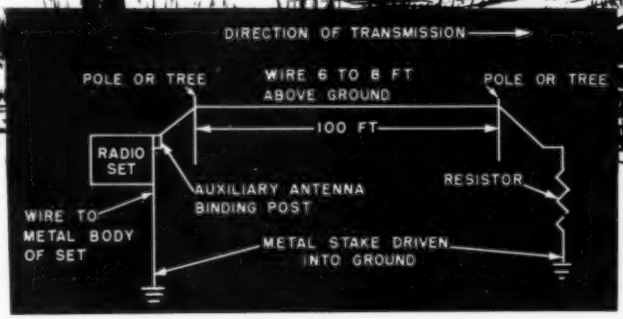


Figure 2.

adio's energy in one direction, thus tilizing that energy more efficiently. When using these antennas, you must im the transmitting and receiving an- ennas at each other. If you don't you're asting your time because there can be o communication through improperly riented directional antennas.

Figure 2 shows the first of these di- ectional antennas. Any soldier can put up in 10 minutes with field-expedient aterials. Made of field wire WD- /TT (or any other electrical wire) tretched between two poles or trees, this ntenna will double a set's operating ange. Connect both strands of field wire o the center of the set's auxiliary an- enna binding post. Connect another iece of wire (not attached to the antenna) to any spot on the metal body of the set, then to a metal rod driven into the ground. Stretch the antenna wire between two poles or trees, making sure that the length of the wire is within a foot or two of 100 feet and that the wire is 6 to 8 feet above the ground. Attach the free end of the wire through a 600-ohm carbon resistor to another metal stake driven into the earth. The blown-up insert in Figure 2 shows a convenient method of mounting the resistor between two terminals in a four-inch piece of any insulating material such as plastic, hard rubber, formica or bakelite. It takes a few minutes during training to make these resistor mounts—and they'll save considerable time when assembling antennas in the field.

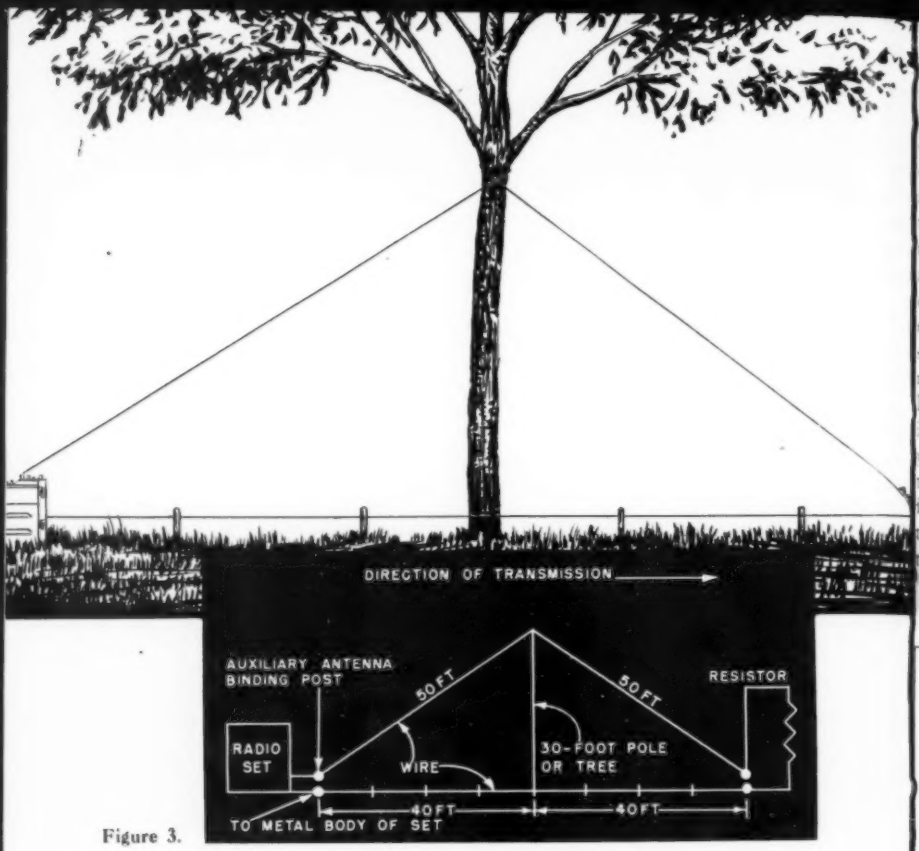


Figure 3.

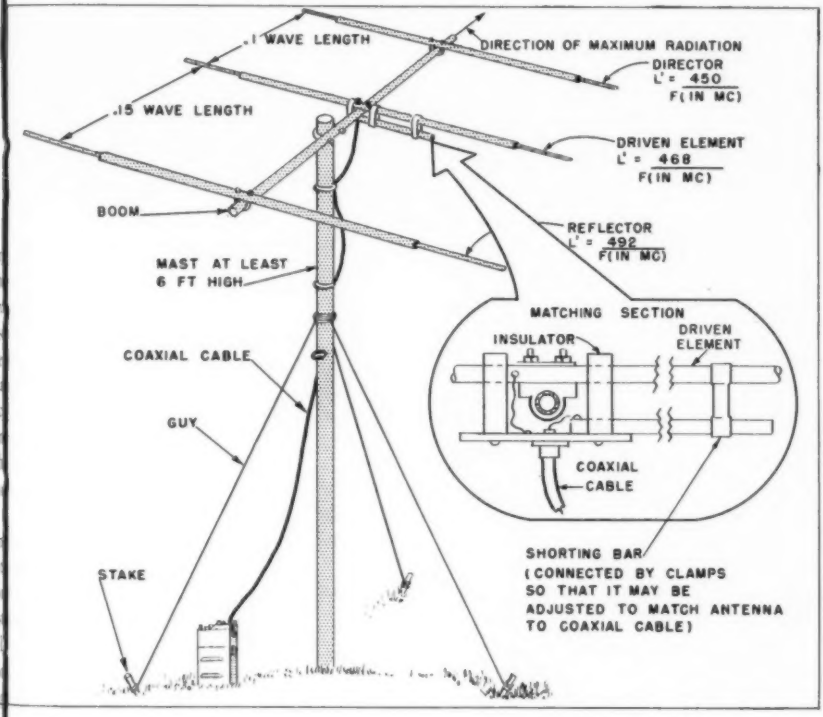
Figure 3 shows another field-expedient antenna—this one will increase a set's range 2½ times. You can make it with a tree or pole and about 200 feet of wire. For proper operation, place the radio 40 feet from the base of the pole or tree and attach one end of the wire to the auxiliary antenna binding post of the radio. Then loop the wire around the pole or tree at a point 30 feet above the ground (or hang it over a branch if you can find one at exactly the right height). Bring the wire down the other side and connect it to a 600-ohm carbon resistor. Fasten the wire to a wooden stake 40 feet from the base of the pole or tree. Next, run the wire along the ground (or stretch it, a few inches above the ground, between pegs) and connect the free end to an spot on the metal body of the set. Th technical principle on which this antenn operates makes it imperative that the dimensions be as accurate as possible anything more than the slightest devi tion from them will lower the efficien of the antenna. There are no ground co nections (metal rods driven into th earth). Again, all wire is WD-1/TT any other electrical wire.

Now let's take a look at the antenn in Figure 4. This is not a field expedient it would have to be made by battalion regimental communications specialis during training and carried in the fie until needed. But it's worth the effo because it can increase a radio's ran

five times. Two 5-mile sets working together through this type of antenna stretch their range to something on the order of 25 miles. Use any pole or mast at least 6 feet high—although the higher the mast, the better reception and transmission it will give. Coaxial cable is available to the communications platoon of the Infantry battalion. Build the three elements on top of the mast in sliding sections of aluminum tubing or similar material. They may then be adjusted in length, according to the formulas shown in the diagram, to the frequency on which you desire to operate. The matching section shown in the insert permits a uniform flow of current from the radio through the driven element. Without the matching section the antenna would be like a fire hose fitted with a half-inch nozzle—a lot of water (radio waves) would be going through the hose (from the transmitting radio through the coaxial cable) but only a thin trickle would be coming out (from the driven element to the receiving set). Ground the metal shield (outer conductor) of the coaxial cable and the center of each element to the boom. Connect the inner coaxial conductor to the matching section. The radio, of course, is connected to the other end of the coaxial cable.

The fact that these antennas concentrate the radio's energy in one direction can be turned to our advantage if an enemy begins to jam our transmissions. Directional antennas tend to reject any signal arriving at their back side. By

Figure 4.



orienting the antenna properly we receive the desired signal and reject the unwanted signal. It takes about six times more power to push a signal into the rear of this type of antenna than into the front.

We see that directional antennas give us several advantages—but we also see obvious disadvantages. They do take time to set up and they receive only signals aimed more or less at them. Again, common sense will tell us when to use them and when to use standard antennas.

We should point out that the antennas illustrated in Figures 2 and 3 are vertically polarized, while those in Figures 1 and 4 are horizontally polarized. Polarization is determined by the plane in which the electrical component of a radio wave moves. An understanding of this rather technical phenomenon is not essential for our purposes here. But we must know that a vertically polarized antenna will work only with another vertically polarized antenna. A horizontally polarized antenna will work only with another horizontally polarized antenna. In its normal operating position the whip antenna on all Infantry radios is vertically polarized and will work with the antennas shown in Figures 2 and 3. However, it will not work with the antennas shown in Figures 1 and 4 unless the whip antenna is turned to the horizontal.

Your present radio equipment will work for you, if you master these few principles and apply them whenever you operate a push-to-talk switch. Always place your set on high, open ground. If you need more range to reach the man at the other end, remember that you can extend the set's range by using a field-expedient antenna. When the enemy is jamming you off the air, keep working. Build a directional antenna or put a hill mass between you and the enemy. If you are working with a whip antenna to another whip antenna, keep them both upright so they will be of like polarity.

Keyword enthusiasts can remember HIGH. High-frequency operation, high ground and high-gain antennas mean high efficiency.

MAJ RICHARD H. WARD has combined his work and spare time to become an expert on radios. His favorite hobby is the study of radio theory. Maj Ward enlisted in the Army in 1941 and was commissioned from OCS at Fort Benning a year later. In World War II, he served as communications officer in the 393d Infantry Regiment and took part in the Ardennes fighting in December 1944. After the war, he became an instructor in the Army Security Agency School and then executive officer of the Army radio station in Asmara, Eritrea, Africa. Returning to the United States, he completed the advanced course at The Infantry School and remained at the school as an instructor in the Communication Department. He left TIS in June for an assignment in Vietnam.

The United States has a positive requirement for an immediately available mobile joint military force of hard hitting character in which the versatility of the whole is emphasized and the preponderance of any one part is de-emphasized.

GENERAL MATTHEW B. RIDGWAY

WHAT'S NEW FOR INFANTRYMEN

APPROVED

Regimental Tank Company Counterattack Mission.

Until recently, the primary defensive mission of the tank company was to provide antitank defense for the battle position. The first consideration in selecting positions for tanks was that they cover the most dangerous avenue of enemy armor approach. Additional missions that could be given to the company, or elements of it, were to participate in counterattacks, reinforce the fires of the front-line battalions and to support the combat outpost.

A re-evaluation of the counterattack mission pointed up the fact that it should be given equal weight with the antitank mission. This is merely a matter of re-slanting emphasis rather than of changing or modifying doctrine. Both missions, counterattack and antitank defense, are now considered primary and of equal importance. As in the past, tanks will still be employed to reinforce the fires of the front-line battalions—although this is not a primary mission.

The terrain and the enemy's armor capability strongly influence the mission of the tank company. If the enemy possesses an armor capability, and there are armor approaches into the battle position, the regimental commander usually attaches one or more tank platoons to each front-line battalion and the remaining platoons to the regimental reserve. If the enemy has little or no armor, or if armor approaches into the battle position are restricted, a larger portion of the tank company may be attached to the reserve battalion and greater emphasis placed on the counterattack mission. If the terrain is suitable, the regimental commander may attach additional tanks to the forward battalions for use with the combat outpost. These tanks usually are attached to the regimental reserve upon withdrawal of the combat outpost. The company headquarters usually is retained under regimental control, with the tank-company commander acting as antitank officer on the regimental special staff.

When additional tank units are attached to the Infantry regiment, it usually is desirable for tanks from the regimental tank company to be attached to the front-line battalions and for the nonorganic tanks to be attached to the regimental reserve.

Mobile-Task-Force Problems.

Three two-hour problems have been prepared by The Infantry School to familiarize students at all levels with the composition and employment of mobile-task-force units from platoon to battalion level. The purpose of these problems is to acquaint students with the task-force concept which they will encounter in the field. The problems do not enunciate doctrine but are designed to broaden the student's thinking about the flexibility, dispersion, combined-arms operations, mobility and self-sufficiency of atomic warfare. A conference on the composition and employment of mobile-task-force units is followed by a map exercise in which students organize combat units for various tactical situations.

TRAINING AIDS

Blank-Firing Adapter for M-1 Rifle.

A sergeant at the Signal Corps School, Fort Monmouth, N. J., has invented a blank-firing adapter for the M-1 rifle which permits the weapon to fire blank ammunition semiautomatically. The device increases the realism of training problems and reduces the danger involved in using blanks at night and at close range during tactical exercises. Without the device, the M-1 fires only single shots. The adapter has not been approved as standard equipment by Department of the Army.

TRAINING FILMS

New Series on the 106mm Recoilless Rifle.

Production has begun on approximately seven 7-minute films on the 106mm recoilless rifle. These films, which should be distributed next fall, will depict crew drill, servicing of the 106mm recoilless rifle, use of the spotting rifle and mounting and dismounting the weapon.

New Films on Military Training.

Six new films to replace TF 7-295, "Military Training," will be released this month. The films depict an Infantry colonel conducting a series of conferences with his officers and noncommissioned officers on military instruction. There are six conferences, each on a separate film with its own release number.

In Part I, "Principles of Learning," (TF 21-2301), the colonel stresses the connection between training and combat reaction. He discusses the mechanics of learning, the role of the senses in learning and the psychological principles of learning as outlined in FM 21-6.

Part II, "The Stages of Instruction—Preparation," (TF 21-2302), consists of a general explanation of the stages of instruction and a detailed explanation of the five steps of preparation.

Part II, "The Stages of Instruction—Presentation," (TF 21-2303), contains a brief discussion of the lecture, conference and demonstration and a detailed discussion of lesson organization.

Part II, "The Stages of Instruction—Application, Examination, Review or Critique," (TF 21-2304), explains the methods and techniques of conducting practical-work periods, examinations and critiques. This part concludes with a summary of the stages of instruction and a brief discussion of their application to the training situation.

Part III, "Training Aids," (TF 21-2305), discusses the characteristics, techniques and uses of a good training aid.

Part IV, "Speech Techniques," (TF 21-2306), portrays correct platform manner and speech techniques.

All six films are designed to be shown separately; however, the three subdivisions of Part II should be shown progressively.

FIELD MANUALS

Training Circular TC 7-1, "Employment of Scout Dogs," provides guidance for the first time to Infantry leaders in the employment of scout dogs. Some details on training and handling are provided in this circular but it primarily stresses tactical employment of scout dogs.

Technical Manual 57-220, "Technical Training of Parachutist," has been revised and expanded. The revision describes the use of the T-10 parachute, use of the inclined plane for parachute-landing falls and techniques of parachuting with arctic equipment.

Special Text 7-24-2, "Signal Communication for Infantry Units," supersedes ST 7-24-1. In addition to providing complete radio- and wire-net diagrams for all Infantry units, this text includes descriptions and illustrations of Infantry communications equipment. ST 7-24-2 is available from the Book Department, Fort Benning, Georgia, for $.30 a copy.